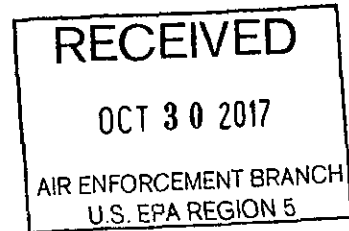


October 26, 2017

Ohio Environmental Protection Agency
Division of Air Pollution Control
Southeast District Office
2195 Front Street
Logan, OH 43138

**Re: Rice Drilling D, LLC
NSPS Subpart OOOOa Annual Report**



To whom it may concern:

Rice Drilling D, LLC (Rice) is submitting the attached report for NSPS Subpart OOOOa, as required by 40 CFR §60.5420a(b). This report contains the information specified in §60.5420a(b)(1), (b)(2), (b)(7), and (b)(8).

The report covers the period of August 2, 2016 through August 1, 2017.

Should you have any questions or comments about this submittal, please contact me at (412) 400-6887 or at kristin.ryan@riceenergy.com.

Sincerely,

A handwritten signature in black ink, appearing to be "Kristin Ryan", with a large loop at the end.

Kristin Ryan
Emissions Permitting Specialist
Rice Energy, Inc.

Cc: Director, Air and Radiation Division
US Environmental Protection Agency, Region V
77 West Jackson Boulevard
Chicago, IL 60604-3590

Enclosures



1. The first part of the document is a list of the names of the persons who were present at the meeting. The names are listed in alphabetical order.

Rice Drilling D, LLC
NSPS Subpart OOOOa Annual Report

General Information

Company Name: Rice Drilling D, LLC
Address: 2200 Rice Drive
Canonsburg, PA 15317

Reporting Period	
Start Date	End Date
8/2/2016	8/1/2017

Report Preparer

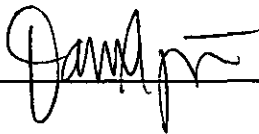
Name: Kristin Ryan
Title: Emissions Permitting Coordinator
Phone: 412-400-6887
Email: kristin.ryan@riceenergy.com

Certifying Official

Name: Jide Famaugun
Title: VP of Production

Based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete.

Signature



Date

10/26/17

AP#	AP#	City	County	State	Platbook Grant	Each Allowed to Be Sent Homeback as Separate	Number of Occurrences of Homeback as Separate	Start Date of Production	Required to Ship Line	Recovery Disposition	Combination	Weighting	Specific Reasons for Recovery to Ship Line	Remarks of the Reporting Company	
012-20073	012-20073	San Diego	San Diego	CA	3/12/2017 9:00	1/17/2017 10:00	N/A	1/17/2017 10:00	808	713	Recovery to sales line	0	95	Not enough flow to operate at super after	Did not submit a notification in accordance with 40 CFR 60.122(b)(1)(2)
012-20074	012-20074	San Diego	San Diego	CA	3/12/2017 9:00	1/17/2017 11:00	N/A	1/17/2017 11:00	806	713	Recovery to sales line	0	95	Not enough flow to operate at super after	Did not submit a notification in accordance with 40 CFR 60.122(b)(1)(2)
012-20075	012-20075	San Diego	San Diego	CA	3/12/2017 9:00	1/17/2017 11:00	N/A	1/17/2017 11:00	807	712	Recovery to sales line	0	95	Not enough flow to operate at super after	Did not submit a notification in accordance with 40 CFR 60.122(b)(1)(2)
012-20076	012-20076	San Diego	San Diego	CA	3/12/2017 9:00	1/17/2017 11:00	N/A	1/17/2017 11:00	775	709	Recovery to sales line	0	115	Not enough flow to operate at super after	Did not submit a notification in accordance with 40 CFR 60.122(b)(1)(2)
012-20077	012-20077	San Diego	San Diego	CA	3/12/2017 9:00	1/17/2017 11:00	N/A	1/17/2017 11:00	423	588	Recovery to sales line	0	14	Not enough flow to operate at super after	Did not submit a notification in accordance with 40 CFR 60.122(b)(1)(2)
012-20078	012-20078	San Diego	San Diego	CA	3/12/2017 9:00	1/17/2017 11:00	N/A	1/17/2017 11:00	405	321	Recovery to sales line	0	14	Not enough flow to operate at super after	Did not submit a notification in accordance with 40 CFR 60.122(b)(1)(2)
012-20079	012-20079	San Diego	San Diego	CA	3/12/2017 9:00	1/17/2017 11:00	N/A	1/17/2017 11:00	301	439	Recovery to sales line	0	43	Not enough flow to operate at super after	Did not submit a notification in accordance with 40 CFR 60.122(b)(1)(2)
012-20080	012-20080	San Diego	San Diego	CA	3/12/2017 9:00	1/17/2017 11:00	N/A	1/17/2017 11:00	495	456	Recovery to sales line	0	31	Not enough flow to operate at super after	Did not submit a notification in accordance with 40 CFR 60.122(b)(1)(2)
012-20081	012-20081	San Diego	San Diego	CA	3/12/2017 9:00	1/17/2017 11:00	N/A	1/17/2017 11:00	83	54	Recovery to sales line	0	26	Not enough flow to operate at super after	Did not submit a notification in accordance with 40 CFR 60.122(b)(1)(2)
012-20082	012-20082	San Diego	San Diego	CA	3/12/2017 9:00	1/17/2017 11:00	N/A	1/17/2017 11:00	86	54	Recovery to sales line	0	33	Not enough flow to operate at super after	Did not submit a notification in accordance with 40 CFR 60.122(b)(1)(2)
012-20083	012-20083	San Diego	San Diego	CA	3/12/2017 9:00	1/17/2017 11:00	N/A	1/17/2017 11:00	421	353	Recovery to sales line	0	79	Not enough flow to operate at super after	Did not submit a notification in accordance with 40 CFR 60.122(b)(1)(2)
012-20084	012-20084	San Diego	San Diego	CA	3/12/2017 9:00	1/17/2017 11:00	N/A	1/17/2017 11:00	427	353	Recovery to sales line	0	74	Not enough flow to operate at super after	Did not submit a notification in accordance with 40 CFR 60.122(b)(1)(2)
012-20085	012-20085	San Diego	San Diego	CA	3/12/2017 9:00	1/17/2017 11:00	N/A	1/17/2017 11:00	582	552	Recovery to sales line	0	30	Not enough flow to operate at super after	Did not submit a notification in accordance with 40 CFR 60.122(b)(1)(2)
012-20086	012-20086	San Diego	San Diego	CA	3/12/2017 9:00	1/17/2017 11:00	N/A	1/17/2017 11:00	587	552	Recovery to sales line	0	28	Not enough flow to operate at super after	Did not submit a notification in accordance with 40 CFR 60.122(b)(1)(2)
012-20087	012-20087	San Diego	San Diego	CA	3/12/2017 9:00	1/17/2017 11:00	N/A	1/17/2017 11:00	587	564	Recovery to sales line	0	21	Not enough flow to operate at super after	Did not submit a notification in accordance with 40 CFR 60.122(b)(1)(2)
012-20088	012-20088	San Diego	San Diego	CA	3/12/2017 9:00	1/17/2017 11:00	N/A	1/17/2017 11:00	377	375	Recovery to sales line	0	2	Not enough flow to operate at super after	Did not submit a notification in accordance with 40 CFR 60.122(b)(1)(2)
012-20089	012-20089	San Diego	San Diego	CA	3/12/2017 9:00	1/17/2017 11:00	N/A	1/17/2017 11:00	880	830	Recovery to sales line	0	21	Not enough flow to operate at super after	Did not submit a notification in accordance with 40 CFR 60.122(b)(1)(2)
012-20090	012-20090	San Diego	San Diego	CA	3/12/2017 9:00	1/17/2017 11:00	N/A	1/17/2017 11:00	540	456	Recovery to sales line	0	34	Not enough flow to operate at super after	Did not submit a notification in accordance with 40 CFR 60.122(b)(1)(2)
012-20091	012-20091	San Diego	San Diego	CA	3/12/2017 9:00	1/17/2017 11:00	N/A	1/17/2017 11:00	384	456	Recovery to sales line	0	78	Not enough flow to operate at super after	Did not submit a notification in accordance with 40 CFR 60.122(b)(1)(2)
012-20092	012-20092	San Diego	San Diego	CA	3/12/2017 9:00	1/17/2017 11:00	N/A	1/17/2017 11:00	348	456	Recovery to sales line	0</			

Rice Drilling B, LLC
NSPS Subpart OOOOa Annual Report

Pneumatic Pump Affected Facilities

Pneumatic Pumps Constructed, Modified, or Reconstructed During the Reporting Period:

Well Site	(b) (9)	City	County	State	Number of Pumps	No control device or process is available on site (X)	Technically infeasible to capture and route the emissions to the control device or process (X)	Emissions from the pneumatic pump are routed to a control device or process ¹ (X)	Records of Deviations Occurring During the Reporting Period ¹	Comments
Big Dawg		Powhatan Point	Belmont	OH	2		X			PE certification attached
Bouncy Hunter		Belmont	Belmont	OH	2		X			PE certification attached
Dr. Awkward		Bethesda	Belmont	OH	2		X			PE certification attached
Dragon's Breath		Belmont	Belmont	OH	5		X			PE certification attached
Haymaker		Bethesda	Belmont	OH	2		X			PE certification attached
Iron Warrior		Belmont	Belmont	OH	2		X			PE certification attached
Junkyard Dog		Beallsville	Belmont	OH	2		X			PE certification attached
Madusa		Belmont	Belmont	OH	2		X			PE certification attached
Monster Mutt		Beallsville	Belmont	OH	2		X			PE certification attached
Spitfire		Powhatan Point	Belmont	OH	2		X			PE certification attached
Taco Cat		Belmont	Belmont	OH	2		X			PE certification attached
Thrasher		Belmont	Belmont	OH	2		X			PE certification attached
Taco Cat		Belmont	Belmont	OH	2		X			PE certification attached
Tuna Nut		Bethesda	Belmont	OH	2		X			PE certification attached

Pneumatic Pumps Previously Reported and For Which a Change in the Reported Condition Changed During the Reporting Period:

Well Site	Street Address	City	County	State	Pump ID	New control device and emissions are controlled ¹ (X)	New control device and technically infeasible to capture and route the emissions to the control device (X)	Control device or process was removed and now no control/process is available on site (X)	Control device or process was removed and now technically infeasible to capture and route the emissions to another control device or process (X)	Records of Deviations Occurring During the Reporting Period ¹	Comments
N/A											

¹ If the control device is designed to achieve less than 95 percent emissions reduction, specify the percent emissions reductions the control device is designed to achieve.

² As specified in 40 CFR 60.5420a(c)(16)(iv).

Diaphragm Pumps

LOCATION Big Dawg 911 ADDRESS (b) (9)
COUNTY Belmont (OH) WELL NAMES 1H-A / 3H-A / 5H / 7H

NO. OF DIAPHRAGM PUMPS	1
INSTALLED ON	January 2017
APPLICATION	Glycol transfer pump on storage tank
IN USE FOR < 90 DAYS? – Yes / No	Yes – see documentation
ROUTED TO PROCESS – Yes / No	No
CONTROLLED – Yes / No	No
GREENFIELD SITE – Yes / No	No

NO. OF DIAPHRAGM PUMPS	1
INSTALL DATE	January 2017
APPLICATION	Heat trace/insulation on dehy units
IN USE FOR < 90 DAYS? – Yes / No	Yes – see documentation
ROUTED TO PROCESS – Yes / No	No
CONTROLLED – Yes / No	No

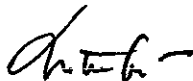
Comments

Reasons why changes are not technically feasible per 40 CFR 60.5393a(b)(5)(iii):

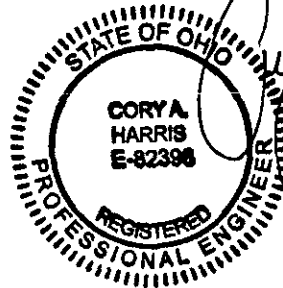
1. No control mechanism on diaphragm pump exhaust line to regen burner
 - a. Varying levels of exhaust gas depending on ΔP , length of stainless tubing run, etc. w/o controls can cause erratic burner operation and can be counterproductive to installed Burner Management Systems (BMS). There is no control mechanism for exhaust gas and this type of installation is not recommended while utilizing the standard *Profire* 2100 BMS.
 - b. Back-pressure on the diaphragm pump exhaust (~8-20 psig) can cause erratic stroke rate as the exhaust is configured to atmospheric conditions.
2. Backflash potential and flame propagation if oxygen is present in stainless steel tubing line
 - a. No flame arrestor is currently installed to prevent backflash. Adding a flame arrestor in this application would result in varying degrees of backpressure continuously being held on the system. Also, a blockage could occur if exhaust system to burner is not properly maintained, resulting in erratic pump operation and excessive wear on internals, pump malfunction, or fire exposure.

"I certify that the assessment of technical infeasibility was prepared under my direction or supervision. I further certify that the assessment was conducted and this report was prepared pursuant to the requirements of §60.5393a(b)(5)(iii). Based on my professional knowledge and experience, and inquiry of personnel involved in the assessment, the certification submitted herein is true, accurate, and complete. I am aware that there are penalties for knowingly submitting false information."

Matthew G. Fox
Production Facilities Engineer
matthew.fox@riceenergy.com
Phone: 412-420-9392


MATTHEW G. FOX
10/26/17

Cory Harris, P.E.
Environmental Engineer
cory.harris@riceenergy.com
Phone: 724-271-7718





2200 Rice Drive
Canonsburg, PA 15317

40 CFR Subpart 0000a Compliance Plan – Production

Diaphragm Pumps

LOCATION Bounty Hunter 911 ADDRESS (b) (9)
COUNTY Belmont (OH) WELL NAMES 2H / 4H / 6H / 8H

NO. OF DIAPHRAGM PUMPS	1
INSTALLED ON	April 2016
APPLICATION	Glycol transfer pump on storage tank
IN USE FOR < 90 DAYS? – Yes / No	Yes – see documentation
ROUTED TO PROCESS – Yes / No	No
CONTROLLED – Yes / No	No
GREENFIELD SITE – Yes / No	No

NO. OF DIAPHRAGM PUMPS	1
INSTALL DATE	April 2016
APPLICATION	Heat trace/insulation on dehy units
IN USE FOR < 90 DAYS? – Yes / No	Yes – see documentation
ROUTED TO PROCESS – Yes / No	No
CONTROLLED – Yes / No	No


Comments

Reasons why changes are not technically feasible per 40 CFR 60.5393a(b)(5)(iii):

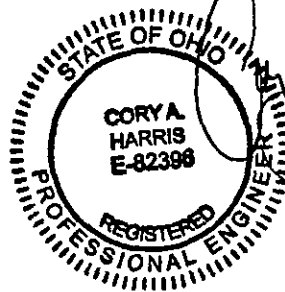
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Production Facilities Engineer
matthew.fox@riceenergy.com
Phone: 412-420-9392


MATTHEW G. FOX
10/26/17

Cory Harris, P.E.
Environmental Engineer
cory.harris@riceenergy.com
Phone: 724-271-7718



Diaphragm Pumps

LOCATION Dr. Awkward 911 ADDRESS (b) (9) –
Bethesda, OH 43719
COUNTY Belmont (OH) WELL NAMES 1H / 3H

NO. OF DIAPHRAGM PUMPS	1
INSTALLED ON	May 2017
APPLICATION	Glycol transfer pump on storage tank
IN USE FOR < 90 DAYS? – Yes / No	Yes – see documentation
ROUTED TO PROCESS – Yes / No	No
CONTROLLED – Yes / No	No
GREENFIELD SITE – Yes / No	No

NO. OF DIAPHRAGM PUMPS	1
INSTALL DATE	May 2017
APPLICATION	Heat trace/insulation on dehy units
IN USE FOR < 90 DAYS? – Yes / No	Yes – see documentation
ROUTED TO PROCESS – Yes / No	No
CONTROLLED – Yes / No	No


Comments

Reasons why changes are not technically feasible per 40 CFR 60.5393a(b)(5)(iii):

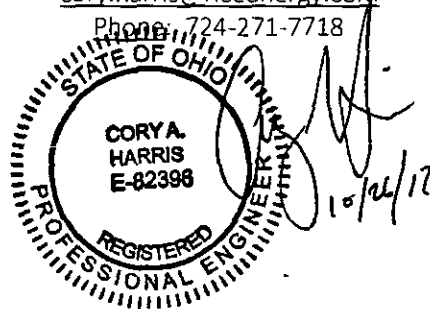
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10/26/17

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Phone: 724-271-7718





2200 Rice Drive
Canonsburg, PA 15317

40 CFR Subpart OOOOa Compliance Plan – Production

Diaphragm Pumps

LOCATION Dragons Breath 911 ADDRESS (b) (9)
COUNTY Belmont (OH) WELL NAMES 1H / 3H / 5H / 7H

NO. OF DIAPHRAGM PUMPS	1
INSTALLED ON	July 2016
APPLICATION	Glycol transfer pump on storage tank
IN USE FOR < 90 DAYS? – Yes / No	Yes – see documentation
ROUTED TO PROCESS – Yes / No	No
CONTROLLED – Yes / No	No
GREENFIELD SITE – Yes / No	No

NO. OF DIAPHRAGM PUMPS	1
INSTALL DATE	July 2016
APPLICATION	Heat trace/insulation on dehy units
IN USE FOR < 90 DAYS? – Yes / No	Yes – see documentation
ROUTED TO PROCESS – Yes / No	No
CONTROLLED – Yes / No	No

NO. OF DIAPHRAGM PUMPS	3
INSTALL DATE	July 2016
APPLICATION	Circulation pumps on evaporator
IN USE FOR < 90 DAYS? – Yes / No	Yes – see documentation
ROUTED TO PROCESS – Yes / No	No
CONTROLLED – Yes / No	No

Comments

Reasons why changes are not technically feasible per 40 CFR 60.5393a(b)(5)(iii):

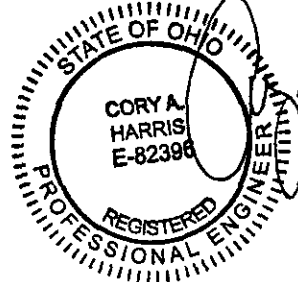
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10/26/17

Cory Harris, P.E.
Environmental Engineer
cory.harris@riceenergy.com
Phone: 724-271-7718



Diaphragm Pumps

LOCATION Haymaker 911 ADDRESS (b) (9) –
Bethesda, OH 43912
COUNTY Belmont (OH) WELL NAMES 1H / 3H

NO. OF DIAPHRAGM PUMPS	1
INSTALLED ON	June 2017
APPLICATION	Glycol transfer pump on storage tank
IN USE FOR < 90 DAYS? – Yes / No	Yes – see documentation
ROUTED TO PROCESS – Yes / No	No
CONTROLLED – Yes / No	No
GREENFIELD SITE – Yes / No	No

NO. OF DIAPHRAGM PUMPS	1
INSTALL DATE	June 2017
APPLICATION	Heat trace/insulation on dehy units
IN USE FOR < 90 DAYS? – Yes / No	Yes – see documentation
ROUTED TO PROCESS – Yes / No	No
CONTROLLED – Yes / No	No


Comments

Reasons why changes are not technically feasible per 40 CFR 60.5393a(b)(5)(iii):

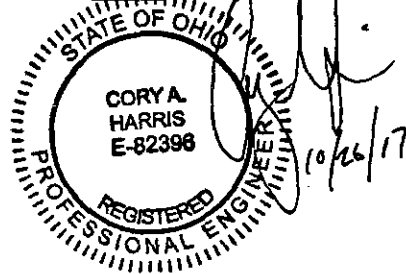
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MATTHEW G. FOX
10/26/17

Cory Harris, P.E.
Environmental Engineer
cory.harris@riceenergy.com
Phone: 724-271-7718



Diaphragm Pumps

LOCATION Iron Warrior 911 ADDRESS (b) (9)
COUNTY Belmont (OH) WELL NAMES 2H / 4H

NO. OF DIAPHRAGM PUMPS	1
INSTALLED ON	April 2016
APPLICATION	Glycol transfer pump on storage tank
IN USE FOR < 90 DAYS? – Yes / No	Yes – see documentation
ROUTED TO PROCESS – Yes / No	No
CONTROLLED – Yes / No	No
GREENFIELD SITE – Yes / No	No

NO. OF DIAPHRAGM PUMPS	1
INSTALL DATE	April 2016
APPLICATION	Heat trace/insulation on dehy units
IN USE FOR < 90 DAYS? – Yes / No	Yes – see documentation
ROUTED TO PROCESS – Yes / No	No
CONTROLLED – Yes / No	No

Comments

Reasons why changes are not technically feasible per 40 CFR 60.5393a(b)(5)(iii):

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Diaphragm Pumps

LOCATION Junkyard Dog 911 ADDRESS (b) (9)
COUNTY Belmont (OH) WELL NAMES 1H / 3H

NO. OF DIAPHRAGM PUMPS	1
INSTALLED ON	January 2017
APPLICATION	Glycol transfer pump on storage tank
IN USE FOR < 90 DAYS? – Yes / No	Yes – see documentation
ROUTED TO PROCESS – Yes / No	No
CONTROLLED – Yes / No	No
GREENFIELD SITE – Yes / No	No

NO. OF DIAPHRAGM PUMPS	1
INSTALL DATE	January 2017
APPLICATION	Heat trace/insulation on dehy units
IN USE FOR < 90 DAYS? – Yes / No	Yes – see documentation
ROUTED TO PROCESS – Yes / No	No
CONTROLLED – Yes / No	No

Comments

Reasons why changes are not technically feasible per 40 CFR 60.5393a(b)(5)(iii):

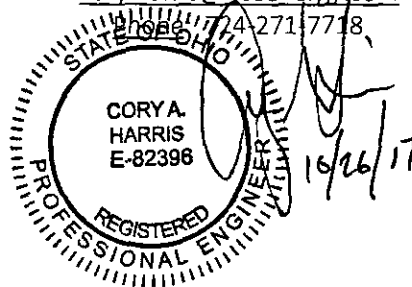
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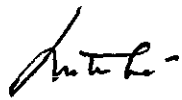
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MATTHEW G. FOX
10/26/17

Cory Harris, P.E.
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cory.harris@riceenergy.com
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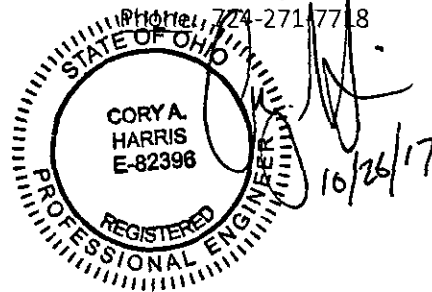


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Diaphragm Pumps

LOCATION Madusa 911 ADDRESS (b) (9)
COUNTY Belmont (OH) WELL NAMES 2H / 4H

NO. OF DIAPHRAGM PUMPS	1
INSTALLED ON	July 2016
APPLICATION	Glycol transfer pump on storage tank
IN USE FOR < 90 DAYS? – Yes / No	Yes – see documentation
ROUTED TO PROCESS – Yes / No	No
CONTROLLED – Yes / No	No
GREENFIELD SITE – Yes / No	No

NO. OF DIAPHRAGM PUMPS	1
INSTALL DATE	July 2016
APPLICATION	Heat trace/insulation on dehy units
IN USE FOR < 90 DAYS? – Yes / No	Yes – see documentation
ROUTED TO PROCESS – Yes / No	No
CONTROLLED – Yes / No	No

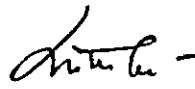
Comments

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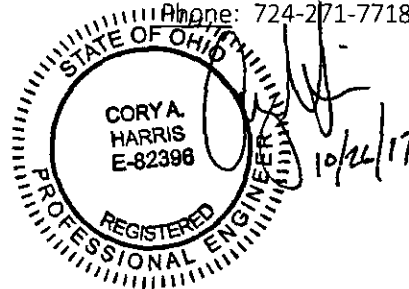
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Diaphragm Pumps

LOCATION Monster Mutt 911 ADDRESS (b) (9)
COUNTY Belmont (OH) WELL NAMES 1H / 3H / 5H

NO. OF DIAPHRAGM PUMPS	1
INSTALLED ON	January 2017
APPLICATION	Glycol transfer pump on storage tank
IN USE FOR < 90 DAYS? – Yes / No	Yes – see documentation
ROUTED TO PROCESS – Yes / No	No
CONTROLLED – Yes / No	No
GREENFIELD SITE – Yes / No	No

NO. OF DIAPHRAGM PUMPS	1
INSTALL DATE	January 2017
APPLICATION	Heat trace/insulation on dehy units
IN USE FOR < 90 DAYS? – Yes / No	Yes – see documentation
ROUTED TO PROCESS – Yes / No	No
CONTROLLED – Yes / No	No


Comments

Reasons why changes are not technically feasible per 40 CFR 60.5393a(b)(5)(iii):

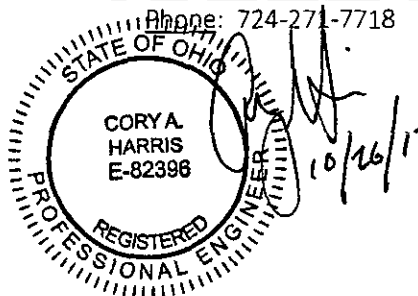
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Diaphragm Pumps

LOCATION Spitfire 911 ADDRESS (b) (9)
COUNTY Belmont (OH) WELL NAMES 1H / 3H

NO. OF DIAPHRAGM PUMPS	1
INSTALLED ON	January 2017
APPLICATION	Glycol transfer pump on storage tank
IN USE FOR < 90 DAYS? – Yes / No	Yes – see documentation
ROUTED TO PROCESS – Yes / No	No
CONTROLLED – Yes / No	No
GREENFIELD SITE – Yes / No	No

NO. OF DIAPHRAGM PUMPS	1
INSTALL DATE	January 2017
APPLICATION	Heat trace/insulation on dehy units
IN USE FOR < 90 DAYS? – Yes / No	Yes – see documentation
ROUTED TO PROCESS – Yes / No	No
CONTROLLED – Yes / No	No

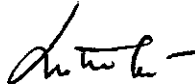
Comments

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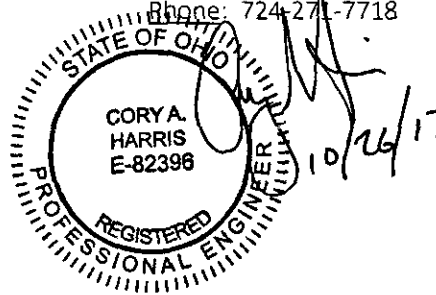
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Diaphragm Pumps

LOCATION Taco Cat 911 ADDRESS (b) (9)
COUNTY Belmont (OH) WELL NAMES 1H / 3H / 5H

NO. OF DIAPHRAGM PUMPS	1
INSTALLED ON	May 2017
APPLICATION	Glycol transfer pump on storage tank
IN USE FOR < 90 DAYS? – Yes / No	Yes – see documentation
ROUTED TO PROCESS – Yes / No	No
CONTROLLED – Yes / No	No
GREENFIELD SITE – Yes / No	No

NO. OF DIAPHRAGM PUMPS	1
INSTALL DATE	May 2017
APPLICATION	Heat trace/insulation on dehy units
IN USE FOR < 90 DAYS? – Yes / No	Yes – see documentation
ROUTED TO PROCESS – Yes / No	No
CONTROLLED – Yes / No	No


Comments

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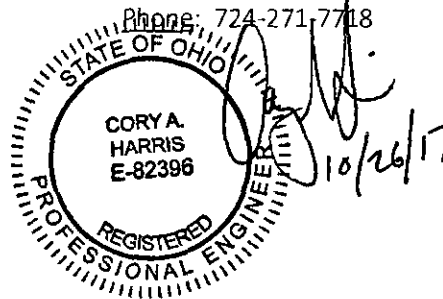
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Diaphragm Pumps

<u>LOCATION</u>	Thrasher	<u>911 ADDRESS</u>	(b) (9)
			(b) (9)
<u>COUNTY</u>	Belmont (OH)	<u>WELL NAMES</u>	1H / 3H / 5H

NO. OF DIAPHRAGM PUMPS	1
INSTALLED ON	April 2016
APPLICATION	Glycol transfer pump on storage tank
IN USE FOR < 90 DAYS? – Yes / No	Yes – see documentation
ROUTED TO PROCESS – Yes / No	No
CONTROLLED – Yes / No	No
GREENFIELD SITE – Yes / No	No

NO. OF DIAPHRAGM PUMPS	1
INSTALL DATE	April 2016
APPLICATION	Heat trace/insulation on dehy units
IN USE FOR < 90 DAYS? – Yes / No	Yes – see documentation
ROUTED TO PROCESS – Yes / No	No
CONTROLLED – Yes / No	No

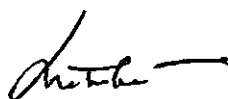
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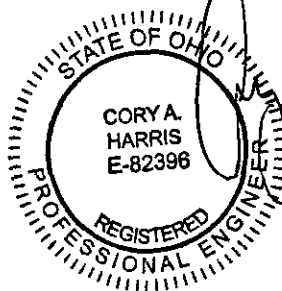
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Diaphragm Pumps

LOCATION Thunderstruck 911 ADDRESS (b) (9)
COUNTY Belmont (OH) WELL NAMES 2H-A / 4H / 6H / 8H / 10H-A

NO. OF DIAPHRAGM PUMPS	1
INSTALLED ON	July 2016
APPLICATION	Glycol transfer pump on storage tank
IN USE FOR < 90 DAYS? – Yes / No	Yes – see documentation
ROUTED TO PROCESS – Yes / No	No
CONTROLLED – Yes / No	No
GREENFIELD SITE – Yes / No	No

NO. OF DIAPHRAGM PUMPS	1
INSTALL DATE	July 2016
APPLICATION	Heat trace/insulation on dehy units
IN USE FOR < 90 DAYS? – Yes / No	Yes – see documentation
ROUTED TO PROCESS – Yes / No	No
CONTROLLED – Yes / No	No

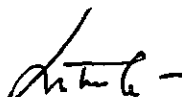
Comments

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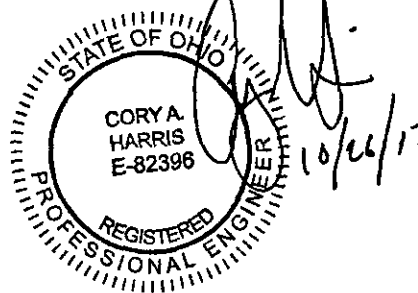
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Diaphragm Pumps

LOCATION Tuna Nut 911 ADDRESS (b) (9)
COUNTY Belmont (OH) WELL NAMES 1H / 3H / 5H / 7H

NO. OF DIAPHRAGM PUMPS	1
INSTALLED ON	June 2017
APPLICATION	Glycol transfer pump on storage tank
IN USE FOR < 90 DAYS? – Yes / No	Yes – see documentation
ROUTED TO PROCESS – Yes / No	No
CONTROLLED – Yes / No	No
GREENFIELD SITE – Yes / No	No

NO. OF DIAPHRAGM PUMPS	1
INSTALL DATE	June 2017
APPLICATION	Heat trace/insulation on dehy units
IN USE FOR < 90 DAYS? – Yes / No	Yes – see documentation
ROUTED TO PROCESS – Yes / No	No
CONTROLLED – Yes / No	No


Comments

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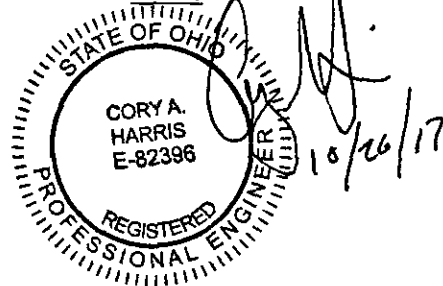
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Rice Drilling D, LLC
NSPS Subpart OOOOa Annual Report

Fugitive Components at Well Sites

Well Site	Street Address	City	County	State	Monitoring Survey Records Included?
Big Dawg	(b) (9)		Belmont	OH	8/24/2017
Big Foot			Belmont	OH	9/20/2017
Blue Thunder			Belmont	OH	7/7/2017
Bounty Hunter			Belmont	OH	8/23/2017
Dr Awkward			Belmont	OH	8/22/2017
Dragons Breath			Belmont	OH	8/30/2017
Haymaker			Belmont	OH	8/16/2017
Iron Warrior			Belmont	OH	8/23/2017
Junkyard Dog			Belmont	OH	8/24/2017
Madusa			Belmont	OH	8/16/2017
Monster Mutt			Belmont	OH	8/24/2017
Spitfire			Belmont	OH	8/24/2017
Taco Cat			Belmont	OH	8/16/2017
Thrasher			Belmont	OH	8/23/2017
Thunderstruck			Belmont	OH	8/22/2017
Tuna Nut			Belmont	OH	8/22/2017



Rice Drilling D LLC
LDAR Inspection Conducted on August 24, 2017
Big Dawg Well Pad
1HA, 3HA, 5H, 7H



1 Dane St.
Clarksburg, WV, 26301
304-624-0989
www.premierenergyservices.com



Rice Drilling D LLC

Big Dawg 1HA, 3HA, 5H, 7H Leaking Components Report

Inspection Conducted on 08/24/2017

Total Leaking Components	11
Total repairs not made within 30 days	0

Leak #	Location Description	Testing Method	Testing Equipment	Inspection Date	Final Repair Deadline	Repair Date	Corrective Action Description	OGI Retest Date	Repair confirmed with OGI?
BIGD-20170824-001	7H Well Head Casing Transducer	OGI	FLIR GF 320	8/24/2017	9/23/2017	8/24/2017	1st Tightened	8/24/2017	YES
BIGD-20170824-002	Fuel Skid 2 Phase Sight Glass	OGI	FLIR GF 320	8/24/2017	9/23/2017	8/24/2017	1st Tightened	8/24/2017	YES
BIGD-20170824-003	7H GPU Run 1 High- Low Quick Exhaust	OGI	FLIR GF 320	8/24/2017	9/23/2017	8/24/2017	1st Tightened	8/24/2017	YES
BIGD-20170824-004	7H GPU Run 1 Supply Line 90	OGI	FLIR GF 320	8/24/2017	9/23/2017	9/1/2017	1st Retaped	9/1/2017	YES
BIGD-20170824-005	7H GPU Run 2 High- Low Quick Exhaust	OGI	FLIR GF 320	8/24/2017	9/23/2017	8/24/2017	1st Replaced	8/24/2017	YES
BIGD-20170824-006	7H GPU Run 2 ESD Diaphragm	OGI	FLIR GF 320	8/24/2017	9/23/2017	9/1/2017	1st Replaced	9/1/2017	YES
BIGD-20170824-007	7H GPU Run 2 Union	OGI	FLIR GF 320	8/24/2017	9/23/2017	9/1/2017	1st Retaped	9/1/2017	YES
BIGD-20170824-008	3HA GPU Run 2 High- Low Quick Exhaust	OGI	FLIR GF 320	8/24/2017	9/23/2017	9/1/2017	1st Replaced	9/1/2017	YES
BIGD-20170824-009	3HA GPU Run 1 Union	OGI	FLIR GF 320	8/24/2017	9/23/2017	8/24/2017	1st Tightened	8/24/2017	YES
BIGD-20170824-010	1HA GPU Run 2 ESD Diaphragm	OGI	FLIR GF 320	8/24/2017	9/23/2017	9/1/2017	1st Replaced	9/1/2017	YES
BIGD-20170824-011	1HA GPU Run 2 Stainless Fitting	OGI	FLIR GF 320	8/24/2017	9/23/2017	8/24/2017	1st Tightened	8/24/2017	YES

Inspection Personnel	OGI Certification Number
(b) (6)	163753

LDAR FLIR Monitoring Form



WELLPAD	Big Dawg wellpad				
ON-SITE CONTACT	Justin Stogner				
DATE TESTED	8/24/2017	START TIME	0800	END TIME	1130
SKY CONDITIONS	Clear	AMBIENT TEMP	77	WIND SPEED	3

CAMERA MODEL	FLIR GF 320
CAMERA ID NUMBER	S/N: 44401600
CAMERA CERTIFICATION DATE	8 August 2016
DAILY VERIFICATION DATE	8/24/2017
MAXIMUM VIEWING DISTANCE	25 feet

MONITORING COMPANY	Premier Energy Services, LLC
MONITORING TECHNICIAN	(b) (6)
TECHNICIAN CERTIFIED? (Y/N)	YES
TECHNICIAN YEARS OF EXPERIENCE	2 Months

LEAKS DETECTED (Attach additional sheets if necessary)

	Location Description	Date Detected	Date Repaired	Camera Model and ID for Rescan	Corrective Action Description <u>For Each Attempt</u>
1	7H Well Head casing Transducer	8/24/2017	8/24/2017	FLIR GF 320 S/N: 44401600	1 st Tightened
2	Fuel Skid 2 Phase Sight Glass	8/24/2017	8/24/2017	FLIR GF 320 S/N: 44401600	1 st Tightened
3	7H GPU Run 1 High-Low Quick Exhaust	8/24/2017	8/24/2017	FLIR GF 320 S/N: 44401600	1 st Tightened
4	7H GPU Run 1 Supply Line 90	8/24/2017	9/1/2017	FLIR GF 320 S/N: 44401600	1 st Retaped
5	7H GPU Run 2 High-Low Quick Exhaust	8/24/2017	8/24/2017	FLIR GF 320 S/N: 44401600	1 st Replaced
6	7H GPU Run 2 ESD Diaphragm	8/24/2017	9/1/2017	FLIR GF 320 S/N: 44401600	1 st Replaced

NUMBER OF COMPONENTS NOT REPAIRED DURING INITIAL SCAN (#)	5
ALL UNREPAIRED COMPONENTS HAVE BEEN TAGGED (✓)	✓
NUMBER OF DIFFICULT-TO-MONITOR COMPONENTS SCANNED (#)	0
NUMBER OF UNSAFE-TO-MONITOR COMPONENTS SCANNED (#)	0

LDAR FLIR Monitoring Form



AT LEAST ONE STILL IMAGE IS ATTACHED (✓)	✓
ALL STILL IMAGES ARE DATED AND GIS ENABLED (✓)	✓
LEAKER STILL IMAGES ARE ATTACHED (✓ or N/A)	✓
REPAIR STILL IMAGES ARE ATTACHED (✓ or N/A)	✓
MONITORING PLAN AND OBSERVATION PATH WERE FOLLOWED* (✓)	✓
DELAY OF REPAIR FORMS COMPLETE (✓ or N/A)	N/A

*If either plan or path were not followed, please include a written description and explanation with this form.

ADDITIONAL OHIO CALCULATION:

$$Leak\% = \frac{eak}{Count_{Est}} \times 100\%$$

LEAKER COUNT	11
ESTIMATED COMPONENT COUNT*	1073
LEAK PERCENT**	1.0

* Provided by Emission Permitting Specialist or Coordinator; estimated using Subpart W population count factors.

** If Leak Percent is greater than 2.0%, increase monitoring frequency to quarterly.

Signature: [Signature] Date: 24 Aug 2017

LDAR FLIR Monitoring Form



LEAKS DETECTED (Attach additional sheets if necessary)					
Location Description		Date Detected	Date Repaired	Camera Model and ID for Rescan	Corrective Action Description <i><u>For Each Attempt</u></i>
7	7H GPU Run 2 Union	8/24/2017	9/1/2017	FLIR GF 320 S/N: 44401600	1 st Retaped
8	3HA GPU Run 2 High- Low Quick Exhaust	8/24/2017	9/1/2017	FLIR GF 320 S/N: 44401600	1 st Replaced
9	3HA GPU Run 1 Union	8/24/2017	8/24/2017	FLIR GF 320 S/N: 44401600	1 st Tightened
10	1HA GPU Run 2 ESD Diaphragm	8/24/2017	9/1/2017	FLIR GF 320 S/N: 44401600	1 st Replaced
11	1HA GPU Run 2 Stainless Fitting	8/24/2017	8/24/2017	FLIR GF 320 S/N: 44401600	1 st Tightened

Initial Site Photo

Location: Well Head

Date & Time: 8/24/2017 8:30:40 AM

Geolocation: N (b) (9)

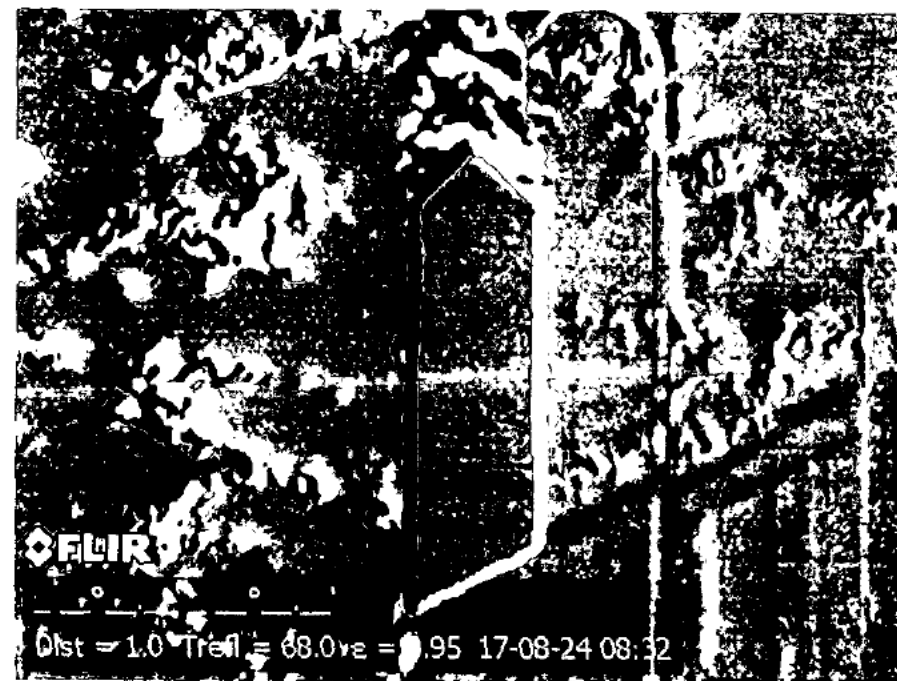


Camera Verification Photo

Location: GPU Stack

Date & Time: 8/24/2017 8:32:05 AM

Geolocation: (b) (9)



BIGD-20170824-001IR Leaking

Location: 7H Well Head Casing Transducer

Date & Time: 8/24/2017 8:44:13 AM

Geolocation: (b) (9)

(b) (9)

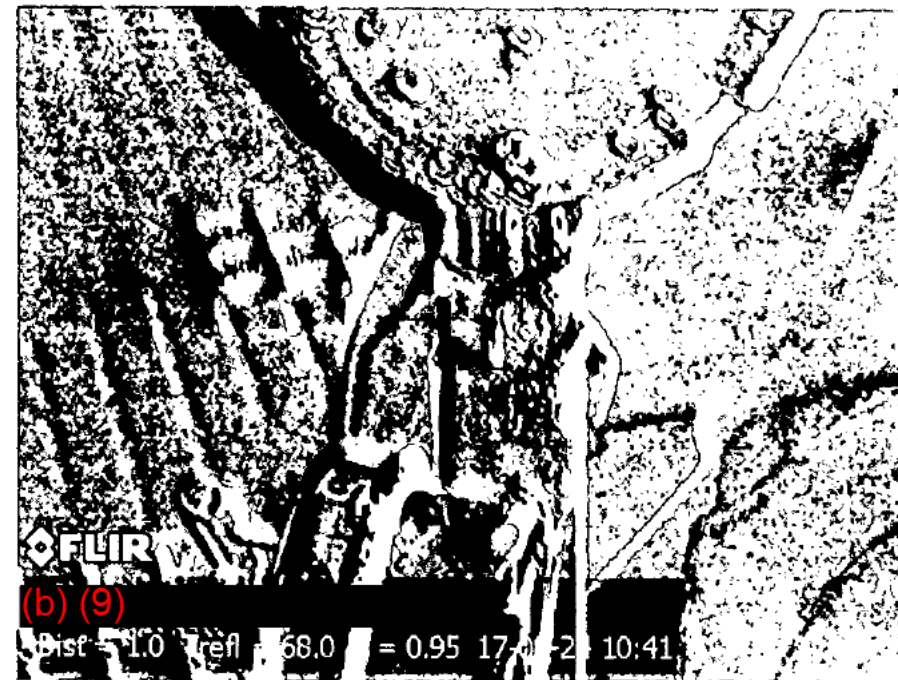


BIGD-20170824-001IR Repaired

Location: 7H Well Head Casing Transducer

Date & Time: 8/24/2017 10:41:48 AM

Geolocation: (b) (9)



BIGD-20170824-002IR Leaking

Location: Fuel Skid 2 Phase Sight Glass

Date & Time: 8/24/2017 8:56:28 AM

Geolocation: (b) (9)

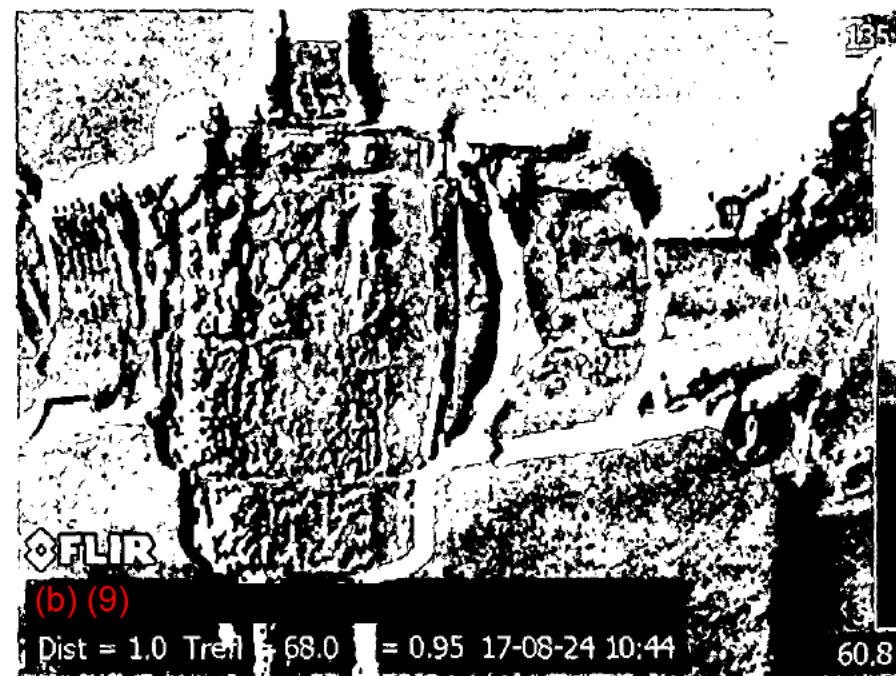


BIGD-20170824-002IR Repaired

Location: Fuel Skid 2 Phase Sight Glass

Date & Time: 8/24/2017 10:44:59 AM

Geolocation: (b) (9)

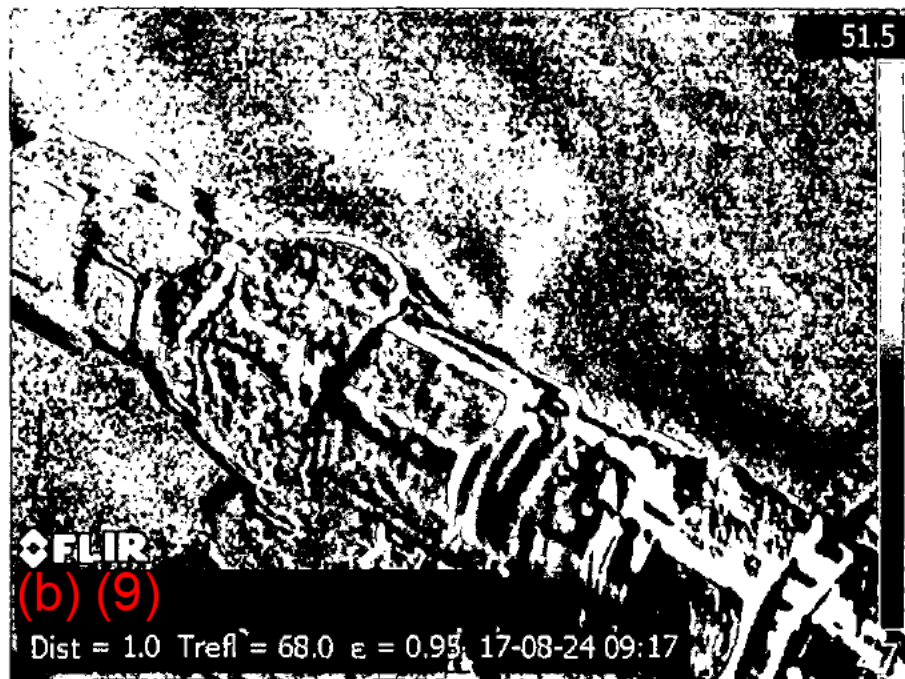


BIGD-20170824-003IR Leaking

Location: 7H GPU Run 1 High- Low Quick Exhaust

Date & Time: 8/24/2017 9:17:18 AM

Geolocation: (b) (9)



BIGD-20170824-003IR Repaired

Location: 7H GPU Run 1 High- Low Quick Exhaust

Date & Time: 8/24/2017 10:47:09 AM

Geolocation: (b) (9)



BIGD-20170824-004IR Leaking

Location: 7H GPU Run 1 Supply Line 90

Date & Time: 8/24/2017 9:24:18 AM

Geolocation: (b) (9)

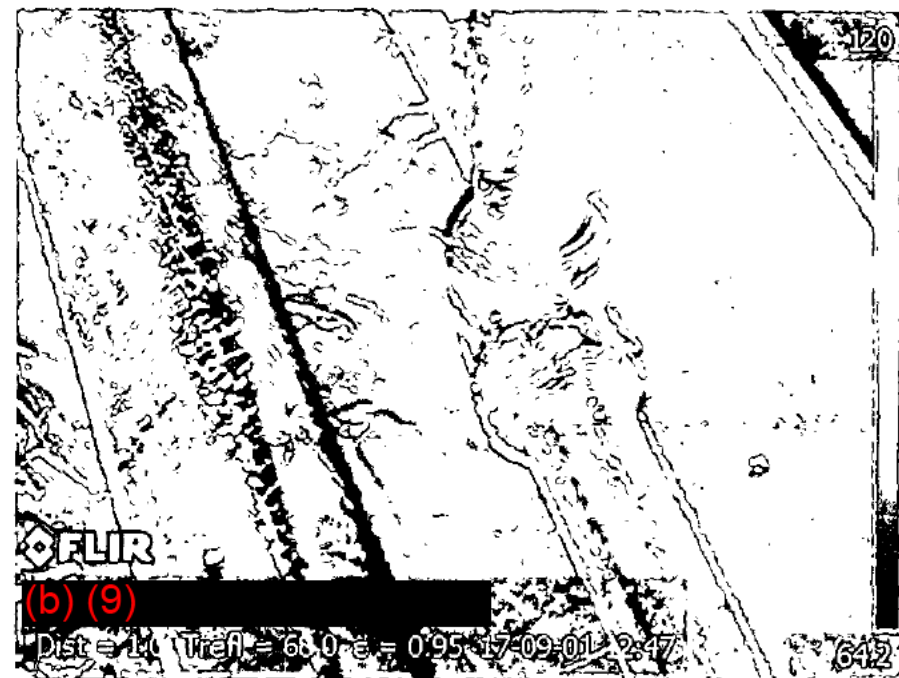


BIGD-20170824-004IR Repaired

Location: 7H GPU Run 1 Supply Line 90

Date & Time: 9/1/2017 12:47:16 PM

Geolocation: (b) (9)

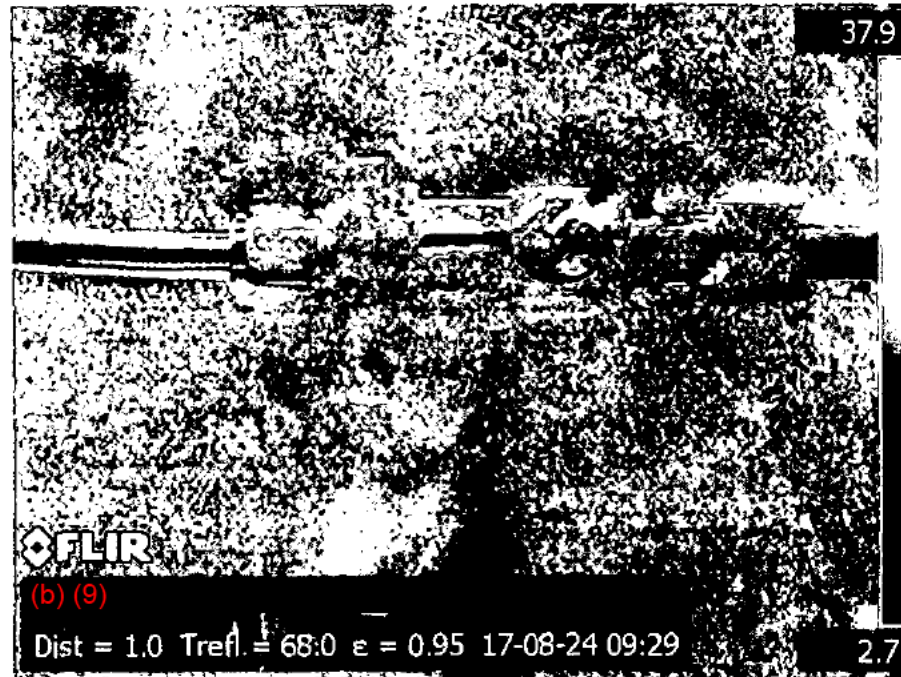


BIGD-20170824-005IR Leaking

Location: 7H GPU Run 2 High- Low Quick Exhaust

Date & Time: 8/24/2017 9:29:22 AM

Geolocation: (b) (9)



BIGD-20170824-005IR Repaired

Location: 7H GPU Run 2 High- Low Quick Exhaust

Date & Time: 8/24/2017 11:00:24 AM

Geolocation: (b) (9)



BIGD-20170824-006IR Leaking

Location: 7H GPU Run 2 ESD Diaphragm

Date & Time: 8/24/2017 9:35:29 AM

Geolocation: N(b) (9)



BIGD-20170824-006IR Repaired

Location: 7H GPU Run 2 ESD Diaphragm

Date & Time: 9/1/2017 12:50:23 PM

Geolocation: (b) (9)

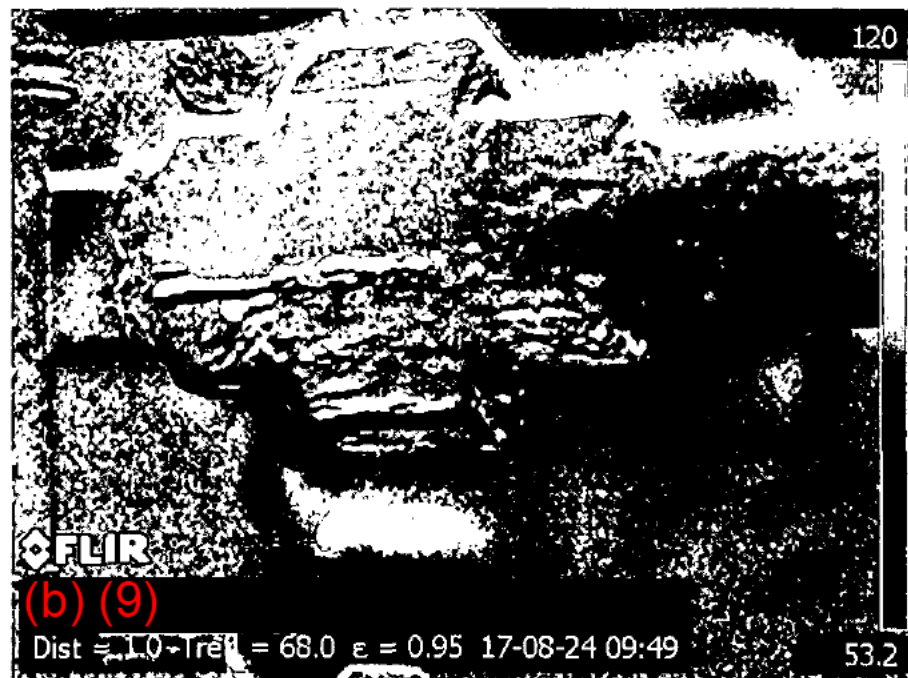


BIGD-20170824-007IR Leaking

Location: 7H GPU Run 2 Union

Date & Time: 8/24/2017 9:49:09 AM

Geolocation: (b) (9)

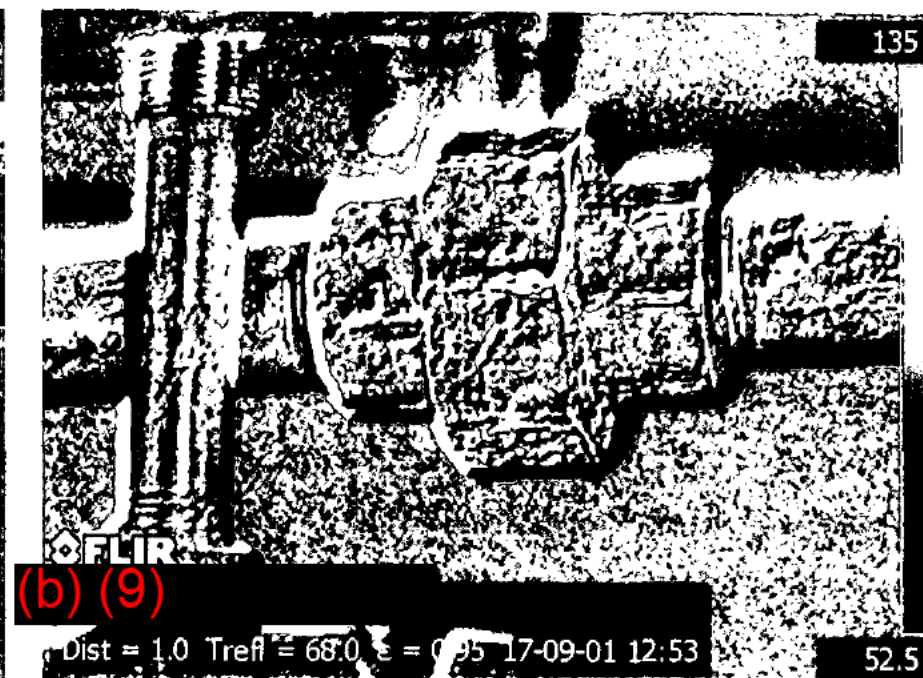


BIGD-20170824-007IR Repaired

Location: 7H GPU Run 2 Union

Date & Time: 9/1/2017 12:53:07 PM

Geolocation: (b) (9)

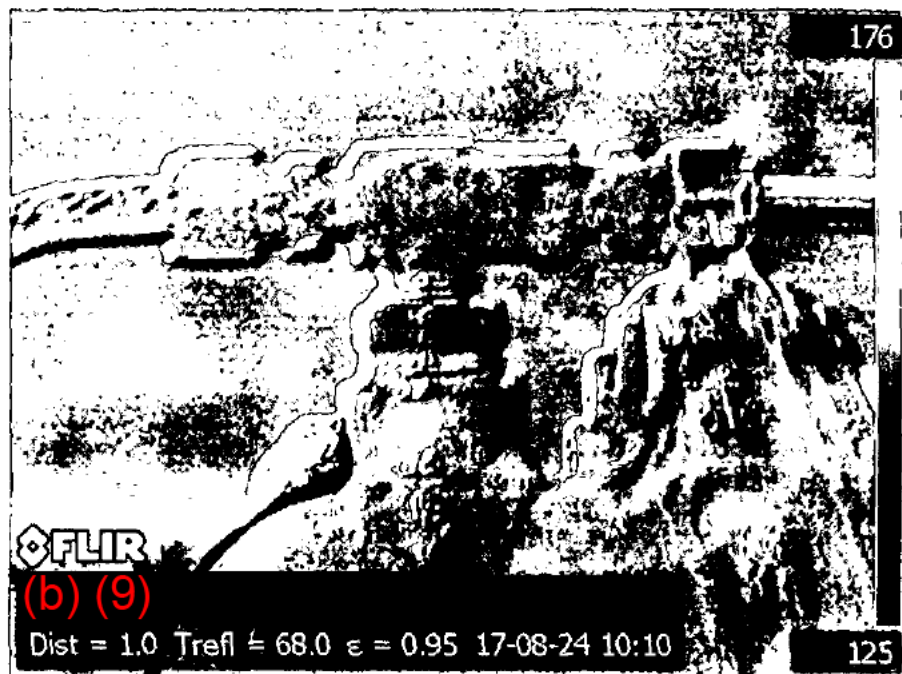


BIGD-20170824-008IR Leaking

Location: 3HA GPU Run 2 High- Low Quick Exhaust

Date & Time: 8/24/2017 10:10:12 AM

Geolocation: (b) (9)



BIGD-20170824-008IR Repaired

Location: 3HA GPU Run 2 High- Low Quick Exhaust

Date & Time: 9/1/2017 1:26:58 PM

Geolocation: (b) (9)

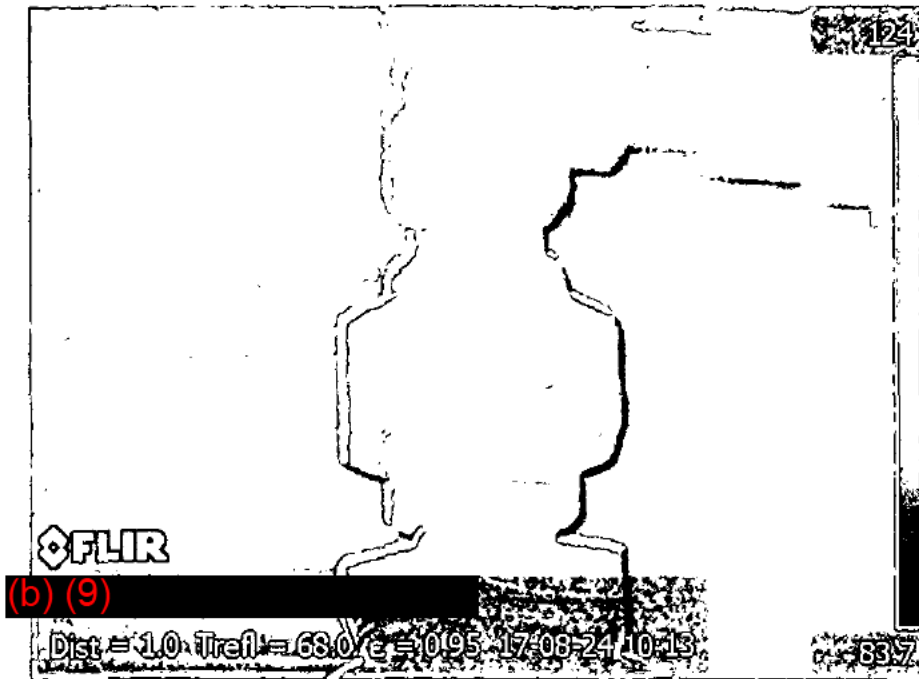


BIGD-20170824-009IR Leaking

Location: 3HA GPU Run 1 Union

Date & Time: 8/24/2017 10:13:47 AM

Geolocation: (b) (9)

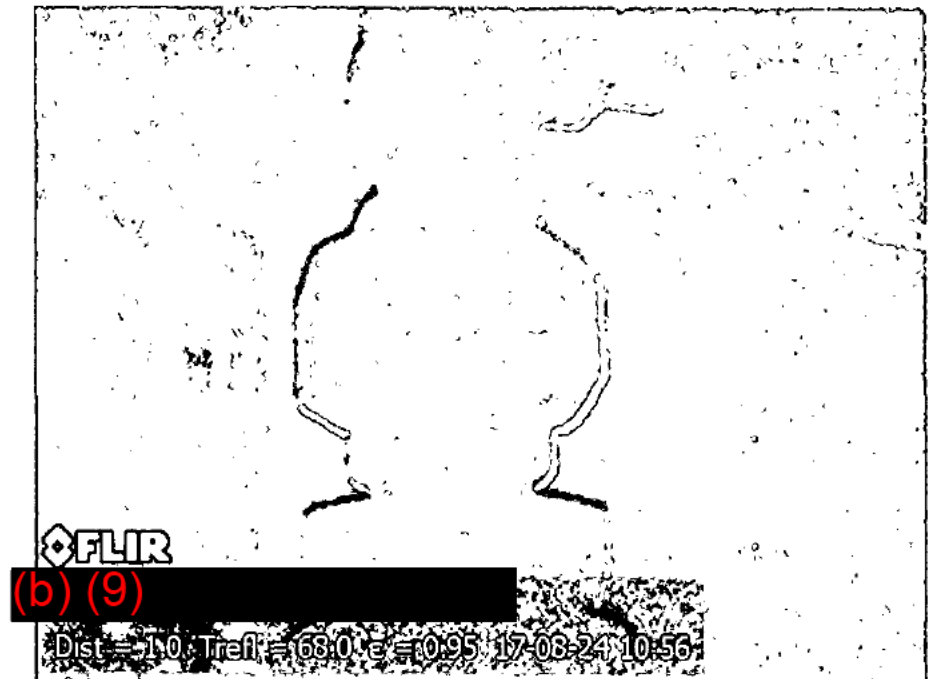


BIGD-20170824-009IR Repaired

Location: 3HA GPU Run 1 Union

Date & Time: 8/24/2017 10:56:27 AM

Geolocation: (b) (9)

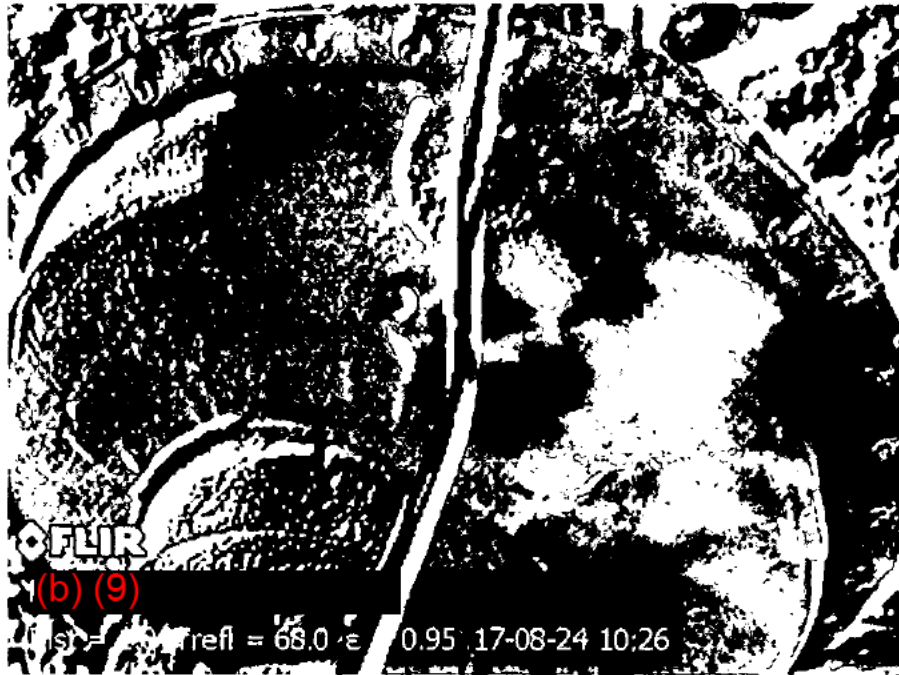


BIGD-20170824-010IR Leaking

Location: 1HA GPU Run 2 ESD Diaphragm

Date & Time: 8/24/2017 10:26:43 AM

Geolocation: (b) (9)



BIGD-20170824-010IR Repaired

Location: 1HA GPU Run 2 ESD Diaphragm

Date & Time: 9/1/2017 12:59:07 PM

Geolocation: (b) (9)



BIGD-20170824-011IR Leaking

Location: 1HA GPU Run 2 Stainless Fitting

Date & Time: 8/24/2017 10:28:11 AM

Geolocation: (b) (9)

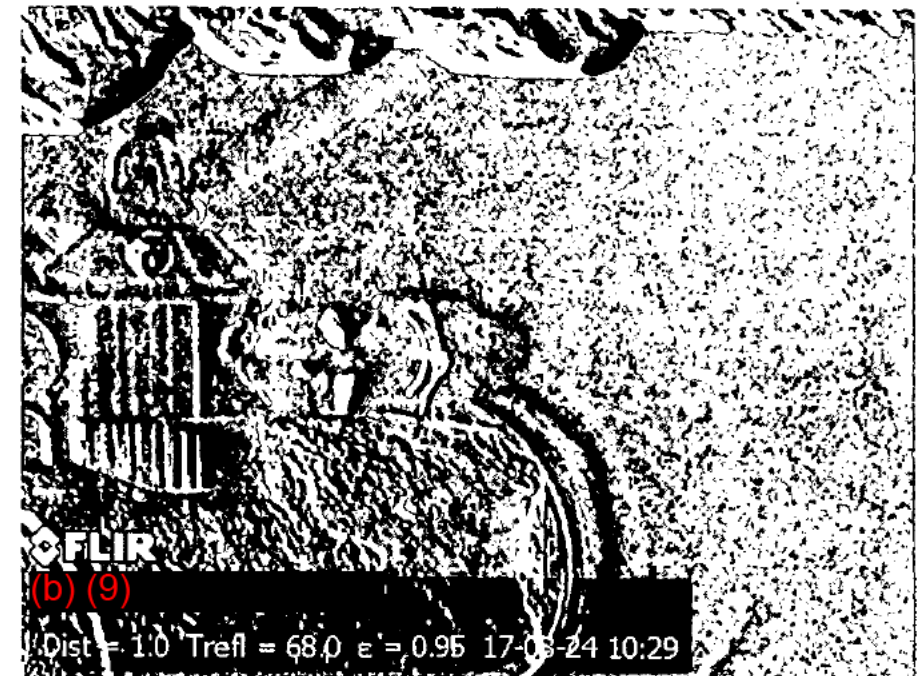


BIGD-20170824-011IR Repaired

Location: 1HA GPU Run 2 Stainless Fitting

Date & Time: 8/24/2017 10:29:42 AM

Geolocation: (b) (9)



LDAR FLIR Monitoring Form - Production



WELLPAD	Bigfoot				
ON-SITE CONTACT	Adam Mallett				
DATE TESTED	9/20/17	START TIME	11:25	END TIME	13:00
SKY CONDITIONS	Cloudy	AMBIENT TEMP	71°	WIND SPEED	5 mph

CAMERA MODEL	GFx320
CAMERA ID NUMBER	SN 74900102
CAMERA CERTIFICATION DATE	2/27/2017
DAILY VERIFICATION DATE	9/20/17
MAXIMUM VIEWING DISTANCE	25 feet

MONITORING COMPANY	Rice Energy
MONITORING TECHNICIAN	(b) (6)
TECHNICIAN CERTIFIED? (Y/N)	Y
TECHNICIAN YEARS OF EXPERIENCE	1.5 years

LEAKS DETECTED (Attach additional sheets if necessary)

Location Description		Date Detected	Date Repaired	Camera Model and ID for Rescan	Corrective Action Description <i>For Each Attempt</i>
1	Dehy Motor Valve Stainless Fitting	9/20/17	9/20/17	GFx320 74900102	Tightened fitting
2	4H Run 1 Fuel Supply Stainless Fitting	9/20/17	9/20/17	GFx320 74900102	Tightened fitting
3	6H Run 1 Regulator Stainless fitting	9/20/17	9/20/17	GFx320 74900102	Tightened fitting
4					
5					
6					

NUMBER OF COMPONENTS NOT REPAIRED DURING INITIAL SCAN (#)	0
ALL UNREPAIRED COMPONENTS HAVE BEEN TAGGED (✓)	N/A
NUMBER OF DIFFICULT-TO-MONITOR COMPONENTS SCANNED (#)	0

LDAR FLIR Monitoring Form - Production



NUMBER OF UNSAFE-TO-MONITOR COMPONENTS SCANNED (#)	0
AT LEAST ONE STILL IMAGE IS ATTACHED (✓)	✓
ALL STILL IMAGES ARE DATED AND GIS ENABLED (✓)	✓
LEAKER STILL IMAGES ARE ATTACHED (✓ or N/A)	✓
REPAIR STILL IMAGES ARE ATTACHED (✓ or N/A)	✓
MONITORING PLAN AND OBSERVATION PATH WERE FOLLOWED* (✓)	✓
DELAY OF REPAIR FORMS COMPLETE (✓ or N/A)	N/A

*If either plan or path were not followed, please include a written description and explanation with this form.

ADDITIONAL OHIO CALCULATION:

$$Leak\% = \frac{Count_{Leak}}{Count_{Est}} \times 100\%$$

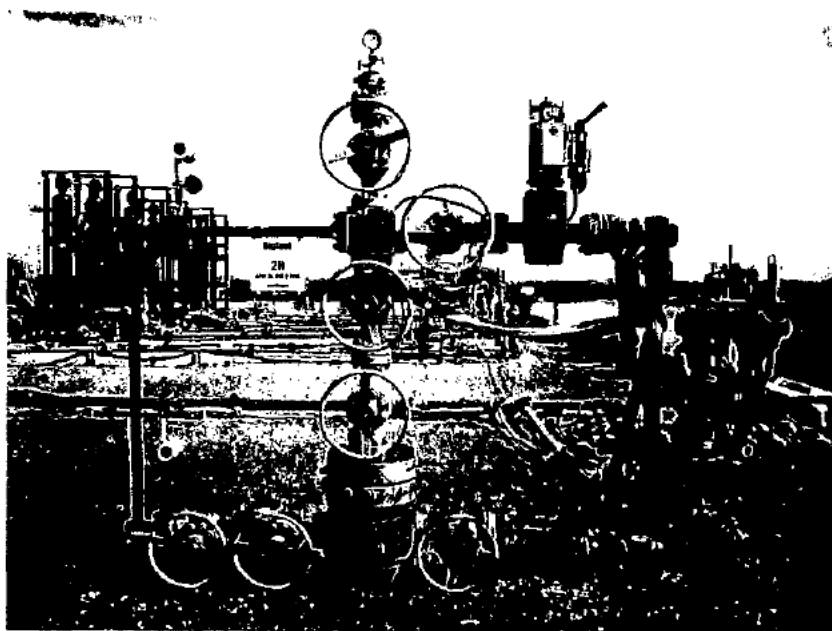
LEAKER COUNT	3
ESTIMATED COMPONENT COUNT*	1591
LEAK PERCENT**	0.19%

*Provided by Emission Permitting Specialist or Coordinator; estimated using Subpart W population count factors.

** If Leak Percent is greater than 2.0%, increase monitoring frequency to quarterly.

Signature: **(b) (6)** Date: 9/21/17

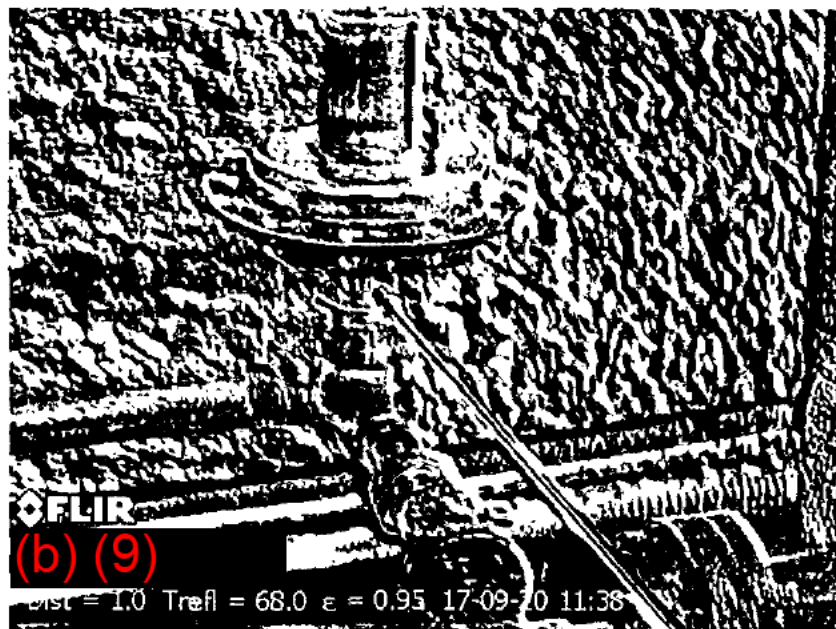
Initial Site Photo



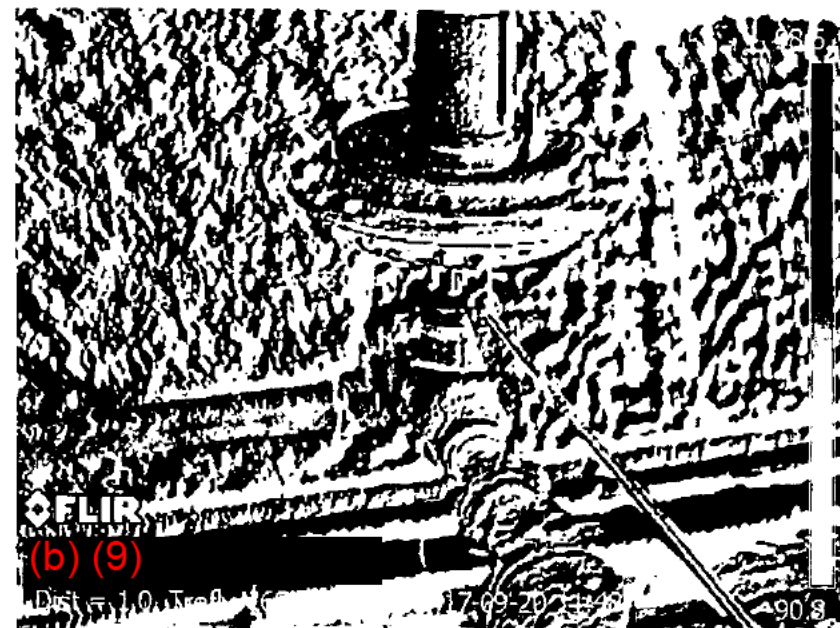
Camera Verification Photo



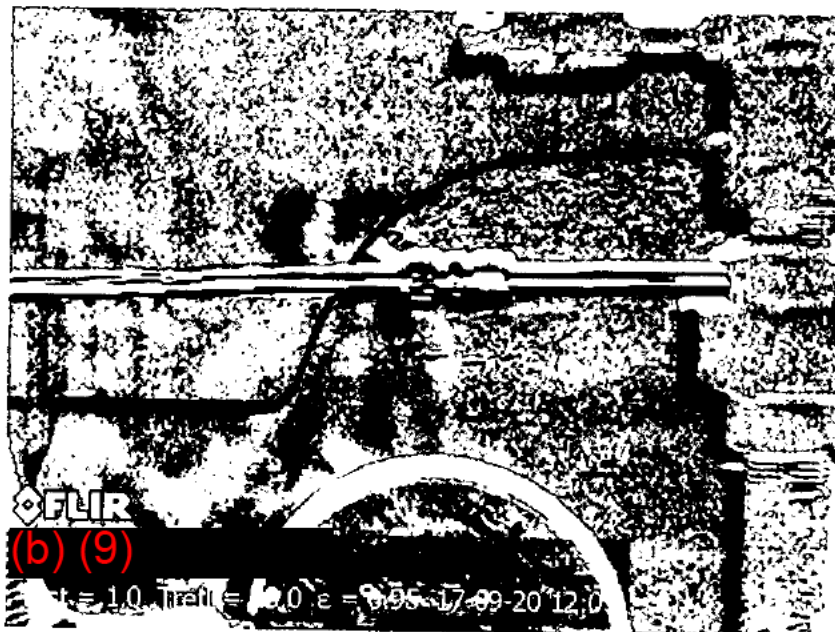
Dehy Motor Valve Stainless Fitting Leak



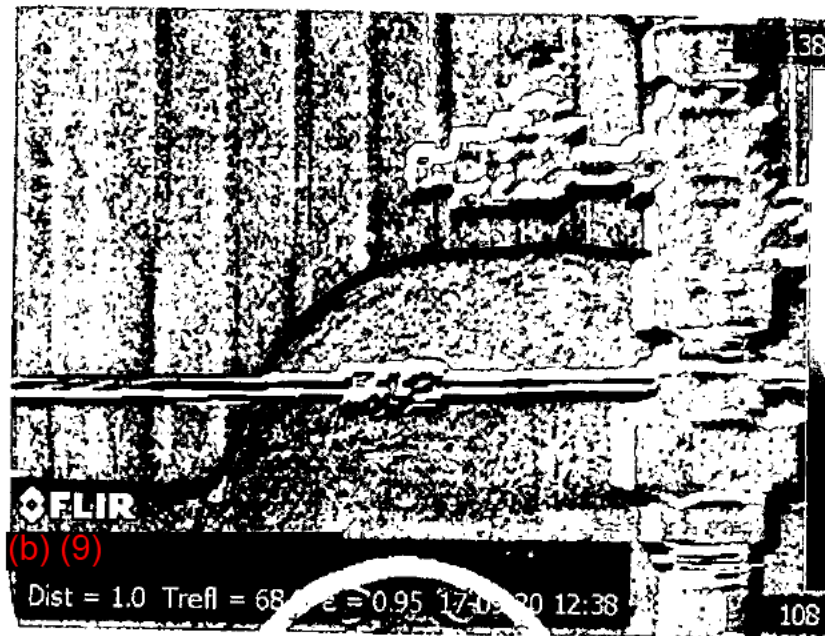
Dehy Motor Valve Stainless Fitting Repair



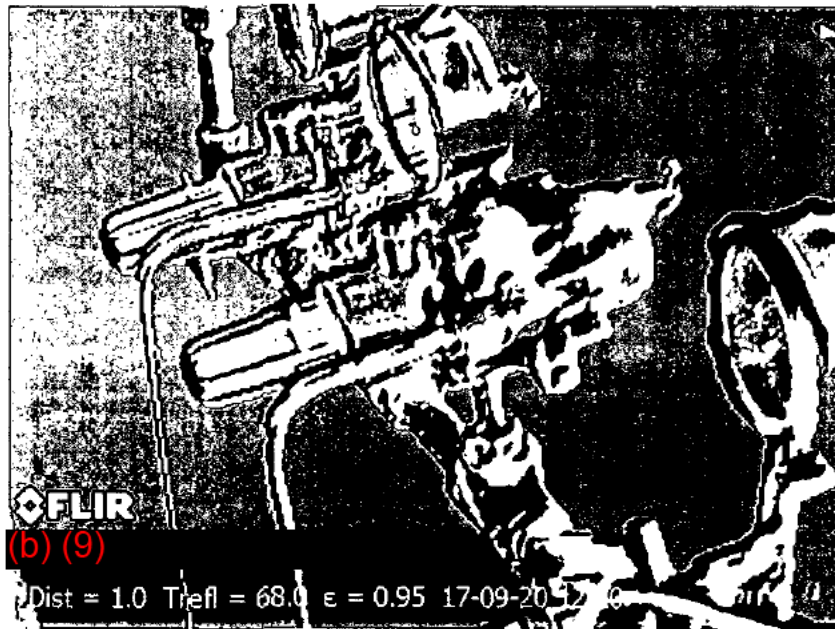
4H Run 1 Fuel Supply Stainless Fitting
Leak



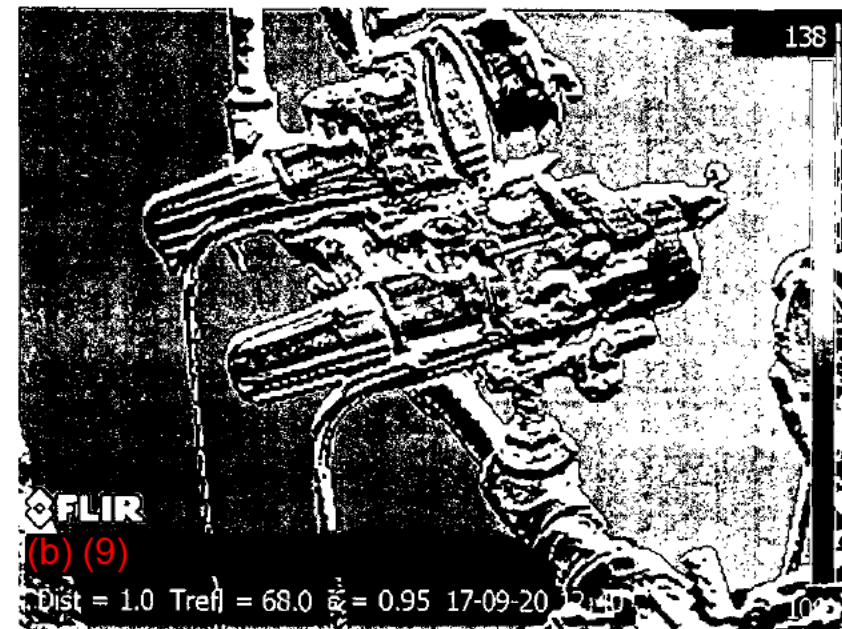
4H Run 1 Fuel Supply Stainless Fitting
Repair



6H Run 1 Fuel Supply Stainless Fitting
Leak



6H Run 1 Fuel Supply Stainless Fitting
Repair



LDAR Form



WELLPAD	Blue Thunder Wellpad
DATE TESTED	July 7 and July 21, 2016
ON-SITE CONTACT	Frank King

LEAK DETECTION EQUIPMENT	GasFindIR HSX	TESTING COMPANY	Environmental Resources Management (ERM)
MANUFACTURER CERTIFICATION DATE	7/29/2015	TESTING COMPLETED BY	(b) (6)
DAILY VERIFICATION DATE	7/7/16 and 7/21/16	TECHNICIAN CERTIFICATION DATE	2/12/2015

LEAKS DETECTED (Attach additional sheets if necessary)				
	Location Description	Date Detected	Date Repaired	Corrective Action Description
1	12H – run 1: Stainless fitting above burner.	7/7/16	7/7/16	Tightened fitting.
2	Stainless fitting.	7/7/16	7/7/16	Tightened fitting.
3	10H – run 2: Weep holes around Hi-Lo.	7/7/16	7/21/16	Diaphragm was replaced.
4				
5				

LEAKER STILL IMAGES ARE ATTACHED (✓ or N/A)	✓
REPAIR STILL IMAGES ARE ATTACHED (✓ or N/A)	✓
DELAY OF REPAIR FORMS COMPLETE (✓ or N/A)	N/A

For Ohio wellpads, complete following calculation. If Leak Percent is greater than 2.0%, reduce monitoring frequency to quarterly.

$$Leak\% = \frac{Count_{Leak}}{Count_{Est}} \times 100\%$$

Leaker Count	3
Estimated Component Count (from Emissions Permitting Specialist)	464
Leak Percent	0.65%

Signature: (b) (6) Date: 7/28/2016

Leak Detection and Repair Photolog

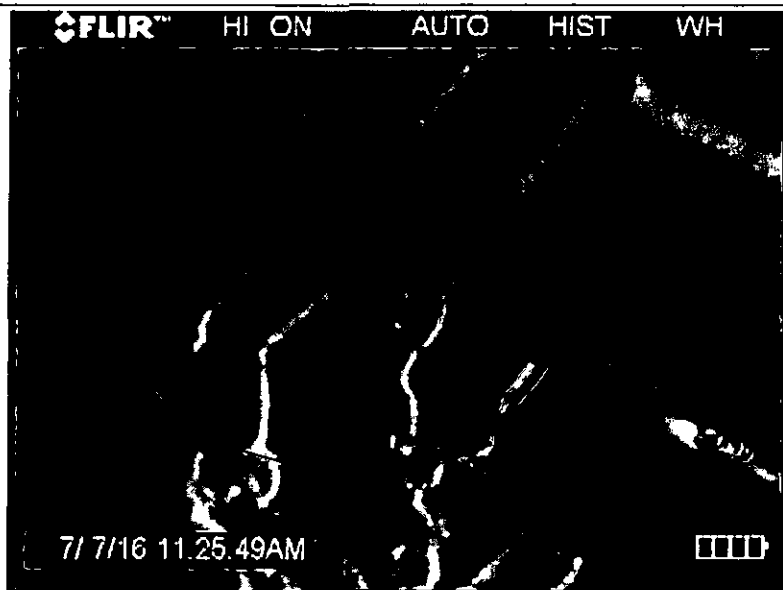


Photo 1: 12H – run 1: Stainless fitting above burner leak.

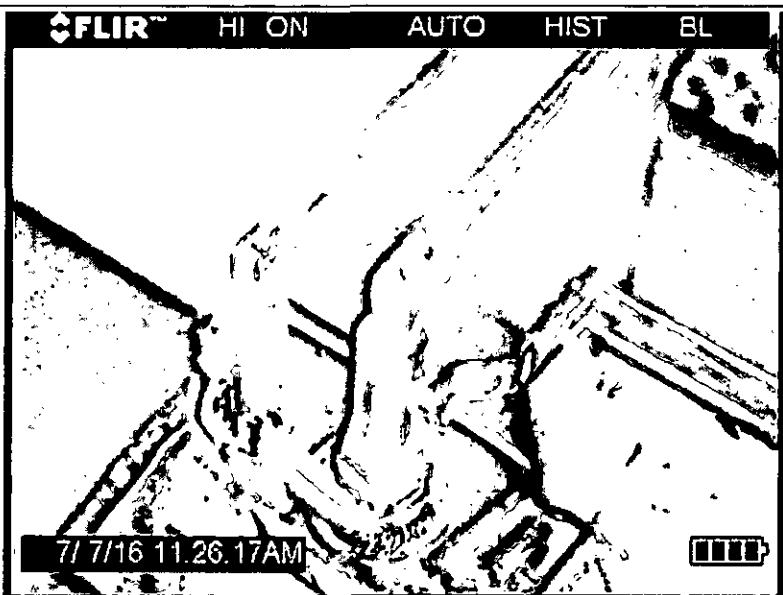


Photo 2: 12H – run 1: Stainless fitting above burner repair.

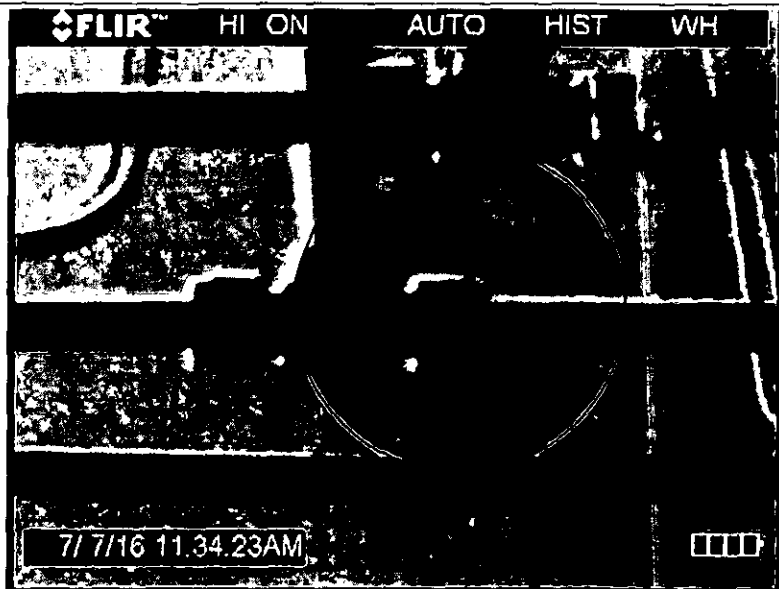


Photo 3: Stainless fitting leak.

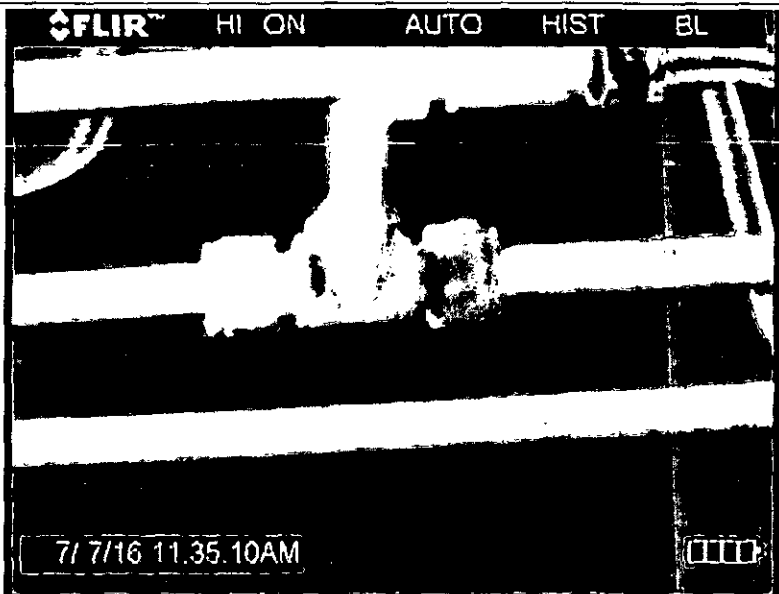


Photo 4: Stainless fitting repair.

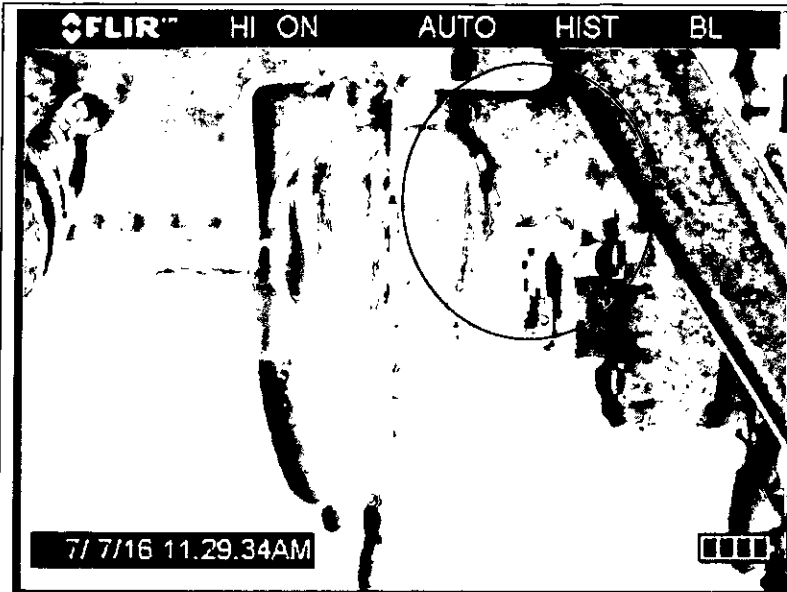


Photo 5: 10H – run 2: Weep hole leaks around Hi-Lo.

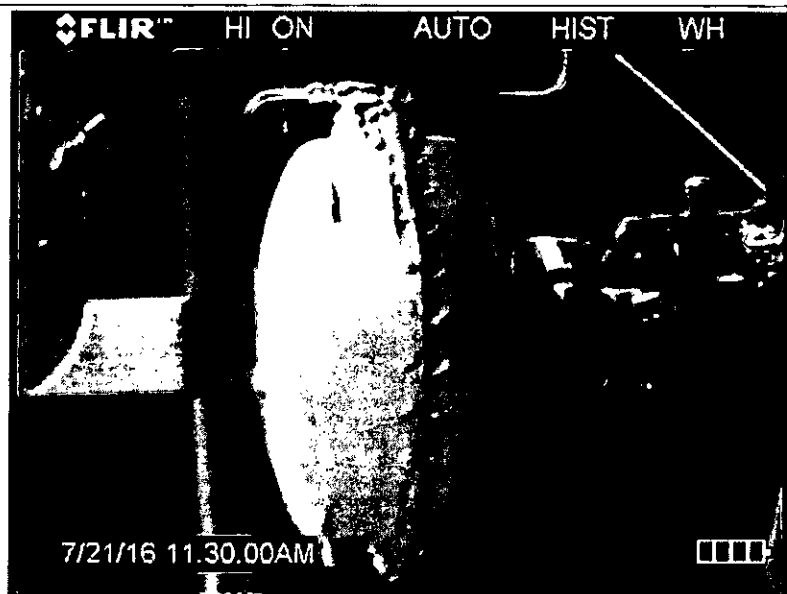


Photo 6: 10H – run 2: Hi-Lo repair.



Rice Drilling D LLC
LDAR Inspection Conducted on August 23, 2017
Bounty Hunter Well Pad
2H, 4H, 6H, 8H



1 Dane St.
Clarksburg, WV, 26301
304-624-0989
www.premierenergyservices.com



Rice Drilling D LLC

Bounty Hunter 2H, 4H, 6H, 8H Leaking Components Report

Inspection Conducted on 08/23/2017

Total Leaking Components	2
Total repairs not made within 30 days	0

Leak #	Location Description	Testing Method	Testing Equipment	Inspection Date	Final Repair Deadline	Repair Date	Corrective Action Description	OGI Retest Date	Repair confirmed with OGI?
BOUN-20170823-001	TEG Fuel Gas Union	OGI	FLIR GF 320	8/23/2017	9/22/2017	8/23/2017	1st Tightened	8/23/2017	YES
BOUN-20170823-002	2H GPU Run 2 Fuel Gas Union	OGI	FLIR GF 320	8/23/2017	9/22/2017	8/23/2017	1st Tightened	8/23/2017	YES

Inspection Personnel	OGI Certification Number
(b) (6)	163753

LDAR FLIR Monitoring Form



WELLPAD	Bounty Hunter wellpad				
ON-SITE CONTACT	Jed Marshall				
DATE TESTED	8/23/2017	START TIME	0745	END TIME	1030
SKY CONDITIONS	Cloudy	AMBIENT TEMP	64	WIND SPEED	8mph

CAMERA MODEL	FLIR GF 320
CAMERA ID NUMBER	S/N: 44401600
CAMERA CERTIFICATION DATE	8 August 2016
DAILY VERIFICATION DATE	8/23/2017
MAXIMUM VIEWING DISTANCE	25 feet

MONITORING COMPANY	Premier Energy Services, LLC
MONITORING TECHNICIAN	(b) (6)
TECHNICIAN CERTIFIED? (Y/N)	YES
TECHNICIAN YEARS OF EXPERIENCE	2 Months

LEAKS DETECTED (Attach additional sheets if necessary)					
	Location Description	Date Detected	Date Repaired	Camera Model and ID for Rescan	Corrective Action Description <i>For Each Attempt</i>
1	TEG Fuel Gas Union	8/23/2017	8/23/2017	FLIR GF 320 S/N: 44401600	1 st Tightened
2	2H GPU Run 2 Fuel Gas Union	8/23/2017	8/23/2017	FLIR GF 320 S/N: 44401600	1 st Tightened
3					
4					
5					
6					

NUMBER OF COMPONENTS NOT REPAIRED DURING INITIAL SCAN (#)	0
ALL UNREPAIRED COMPONENTS HAVE BEEN TAGGED (✓)	✓
NUMBER OF DIFFICULT-TO-MONITOR COMPONENTS SCANNED (#)	0
NUMBER OF UNSAFE-TO-MONITOR COMPONENTS SCANNED (#)	0

LDAR FLIR Monitoring Form



AT LEAST ONE STILL IMAGE IS ATTACHED (✓)	✓
ALL STILL IMAGES ARE DATED AND GIS ENABLED (✓)	✓
LEAKER STILL IMAGES ARE ATTACHED (✓ or N/A)	✓
REPAIR STILL IMAGES ARE ATTACHED (✓ or N/A)	✓
MONITORING PLAN AND OBSERVATION PATH WERE FOLLOWED* (✓)	✓
DELAY OF REPAIR FORMS COMPLETE (✓ or N/A)	N/A

*If either plan or path were not followed, please include a written description and explanation with this form.

ADDITIONAL OHIO CALCULATION:

$$Leak\% = \frac{t_{Leak}}{Count_{Est}} \times 100\%$$

LEAKER COUNT	2
ESTIMATED COMPONENT COUNT*	1437
LEAK PERCENT**	.14

*Provided by Emission Permitting Specialist or Coordinator; estimated using Subpart W population count factors.

** If Leak Percent is greater than 2.0%, increase monitoring frequency to quarterly.

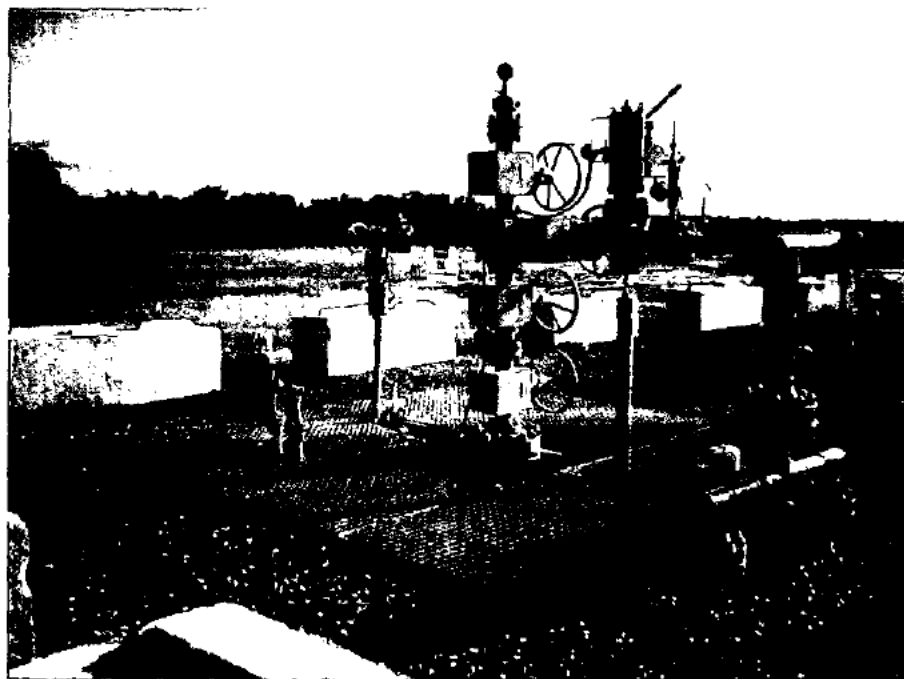
Signature: **(b) (6)** Date: 23 August 2017

Initial Site Photo

Location: Well Head

Date & Time: 8/23/2017 8:46:45 AM

Geolocation: (b) (9)

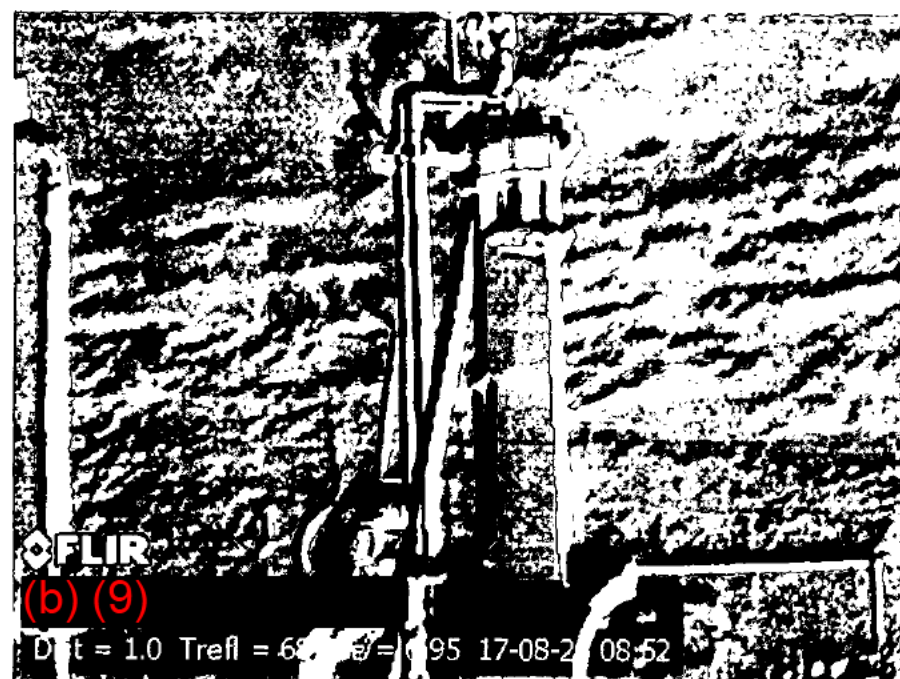


Camera Verification Photo

Location: Dehy Stack

Date & Time: 8/23/2017 8:52:23 AM

Geolocation: (b) (9)



BOUN-20170823-001IR Leaking

Location: TEG Fuel Gas Union

Date & Time: 8/23/2017 8:57:38 AM

Geolocation: (b) (9)



BOUN-20170823-001IR Repaired

Location: TEG Fuel Gas Union

Date & Time: 8/23/2017 10:24:02 AM

Geolocation: (b) (9)

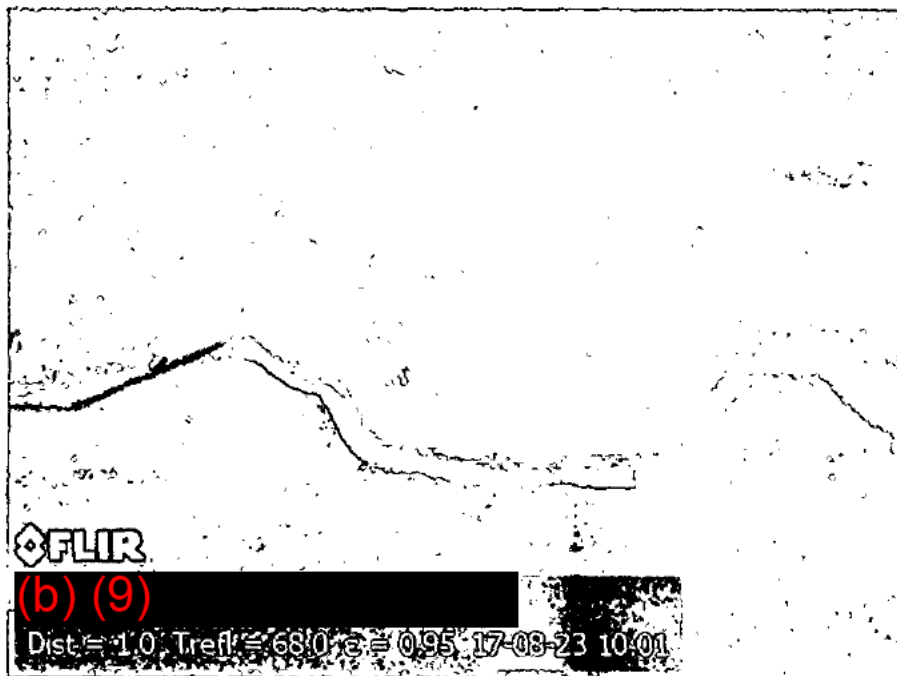


BOUN-20170823-002IR Leaking

Location: 2H GPU Run 2 Fuel Gas Union

Date & Time: 8/23/2017 10:01:09 AM

Geolocation: (b) (9)

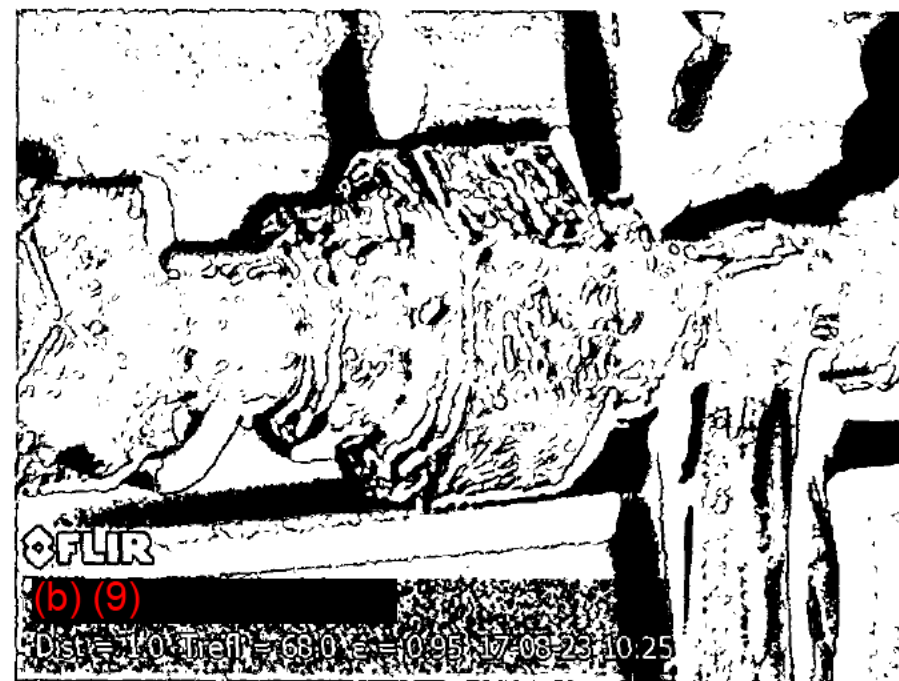


BOUN-20170823-002IR Repaired

Location: 2H GPU Run 2 Fuel Gas Union

Date & Time: 8/23/2017 10:25:27 AM

Geolocation: (b) (9)





Rice Drilling D LLC
LDAR Inspection Conducted on August 22, 2017
Dr Awkward Well Pad
1H, 3H



1 Dane St.
Clarksburg, WV, 26301
304-624-0989
www.premierenergyservices.com



Rice Drilling D LLC

Dr Awkward 1H, 3H Leaking Components Report

Inspection Conducted on 08/22/2017

Total Leaking Components	10
Total repairs not made within 30 days	0

Leak #	Location Description	Testing Method	Testing Equipment	Inspection Date	Final Repair Deadline	Repair Date	Corrective Action Description	OGI Retest Date	Repair confirmed with OGI?
DRAW-20170822-001	1H GPU Run 2 High- Low Valve	OGI	FLIR GF 320	8/22/2017	9/21/2017	9/1/2017	1st Replaced	9/1/2017	YES
DRAW-20170822-002	1H GPU Run 1 High- Low Valve	OGI	FLIR GF 320	8/22/2017	9/21/2017	9/1/2017	1st Replaced	9/1/2017	YES
DRAW-20170822-003	1H GPU Run 2 Fuel Supply Union	OGI	FLIR GF 320	8/22/2017	9/21/2017	8/22/2017	1st Tightened	8/22/2017	YES
DRAW-20170822-004	1H GPU Run 1 Stainless Fitting	OGI	FLIR GF 320	8/22/2017	9/21/2017	8/22/2017	1st Tightened	8/22/2017	YES
DRAW-20170822-005	1H GPU Run 1 Main Gas Supply Line	OGI	FLIR GF 320	8/22/2017	9/21/2017	8/22/2017	1st Tightened	8/22/2017	YES
DRAW-20170822-006	1H GPU Run 1 Stainless Fitting	OGI	FLIR GF 320	8/22/2017	9/21/2017	8/22/2017	1st Tightened	8/22/2017	YES
DRAW-20170822-007	3H GPU Run 2 Stainless Fitting	OGI	FLIR GF 320	8/22/2017	9/21/2017	8/22/2017	1st Tightened	8/22/2017	YES
DRAW-20170822-008	3H GPU Run 2 Pilot Gas	OGI	FLIR GF 320	8/22/2017	9/21/2017	8/22/2017	1st Tightened	8/22/2017	YES
DRAW-20170822-009	3H GPU Run 1 Fuel Gas Stainless Fitting	OGI	FLIR GF 320	8/22/2017	9/21/2017	8/22/2017	1st Tightened	8/22/2017	YES
DRAW-20170822-010	3H GPU Run 1 Fuel Supply to Shutdown	OGI	FLIR GF 320	8/22/2017	9/21/2017	9/1/2017	1st Retaped	9/1/2017	YES

Inspection Personnel	OGI Certification Number
(b) (6)	163753

LDAR FLIR Monitoring Form



WELLPAD	Dr Awkward wellpad				
ON-SITE CONTACT	Jed Marshall				
DATE TESTED	8/22/2017	START TIME	0725	END TIME	1030
SKY CONDITIONS	Clear	AMBIENT TEMP	70	WIND SPEED	6

CAMERA MODEL	FLIR GF 320
CAMERA ID NUMBER	S/N: 44401600
CAMERA CERTIFICATION DATE	8 August 2016
DAILY VERIFICATION DATE	8/22/2017
MAXIMUM VIEWING DISTANCE	25 feet

MONITORING COMPANY	Premier Energy Services, LLC
MONITORING TECHNICIAN	(b) (6)
TECHNICIAN CERTIFIED? (Y/N)	YES
TECHNICIAN YEARS OF EXPERIENCE	2 Months

LEAKS DETECTED (Attach additional sheets if necessary)					
Location Description		Date Detected	Date Repaired	Camera Model and ID for Rescan	Corrective Action Description <i>For Each Attempt</i>
1	1H GPU Run 2 High-Low Valve	8/22/2017	9/1/2017	FLIR GF 320 S/N: 44401600	1 st Replaced
2	1H GPU Run 1 High-Low Valve	8/22/2017	9/1/2017	FLIR GF 320 S/N: 44401600	1 st Replaced
3	1H GPU Run 2 Fuel Supply Union	8/22/2017	8/22/2017	FLIR GF 320 S/N: 44401600	1 st Tightened
4	1H GPU Run 1 Stainless Fitting	8/22/2017	8/22/2017	FLIR GF 320 S/N: 44401600	1 st Tightened
5	1H GPU Run 1 Main Gas Supply Line	8/22/2017	8/22/2017	FLIR GF 320 S/N: 44401600	1 st Tightened
6	1H GPU Run 1 Stainless Fitting	8/22/2017	8/22/2017	FLIR GF 320 S/N: 44401600	1 st Tightened

NUMBER OF COMPONENTS NOT REPAIRED DURING INITIAL SCAN (#)	3
ALL UNREPAIRED COMPONENTS HAVE BEEN TAGGED (✓)	✓
NUMBER OF DIFFICULT-TO-MONITOR COMPONENTS SCANNED (#)	0
NUMBER OF UNSAFE-TO-MONITOR COMPONENTS SCANNED (#)	0

LDAR FLIR Monitoring Form



AT LEAST ONE STILL IMAGE IS ATTACHED (✓)	✓
ALL STILL IMAGES ARE DATED AND GIS ENABLED (✓)	✓
LEAKER STILL IMAGES ARE ATTACHED (✓ or N/A)	✓
REPAIR STILL IMAGES ARE ATTACHED (✓ or N/A)	✓
MONITORING PLAN AND OBSERVATION PATH WERE FOLLOWED* (✓)	✓
DELAY OF REPAIR FORMS COMPLETE (✓ or N/A)	N/A

*If either plan or path were not followed, please include a written description and explanation with this form.

ADDITIONAL OHIO CALCULATION:

$$Leak\% = \frac{Leak}{Count_{Est}} \times 100\%$$

LEAKER COUNT	10
ESTIMATED COMPONENT COUNT*	624
LEAK PERCENT**	1.6

*Provided by Emission Permitting Specialist or Coordinator; estimated using Subpart W population count factors.

** If Leak Percent is greater than 2.0%, increase monitoring frequency to quarterly.

Signature **(b) (6)** Date: 22 August 2017

LDAR FLIR Monitoring Form



LEAKS DETECTED (Attach additional sheets if necessary)					
Location Description		Date Detected	Date Repaired	Camera Model and ID for Rescan	Corrective Action Description <i>For Each Attempt</i>
7	3H GPU Run 2 Stainless Fitting	8/22/2017	8/22/2017	FLIR GF 320 S/N: 44401600	1 st Tightened
8	3H GPU Run 2 Pilot Gas	8/22/2017	8/22/2017	FLIR GF 320 S/N: 44401600	1 st Tightened
9	3H GPU Run 1 Fuel Gas Stainless Fitting	8/22/2017	8/22/2017	FLIR GF 320 S/N: 44401600	1 st Tightened
10	3H GPU Run 1 Fuel Supply to Shutdown	8/22/2017	9/1/2017	FLIR GF 320 S/N: 44401600	1 st Retaped

Initial Site Photo

Location: Well Head

Date & Time: 8/22/2017 8:29:11 AM

Geolocation: (b) (9)



Camera Verification Photo

Location: GPU Stack

Date & Time: 8/22/2017 8:29:53 AM

Geolocation: (b) (9)

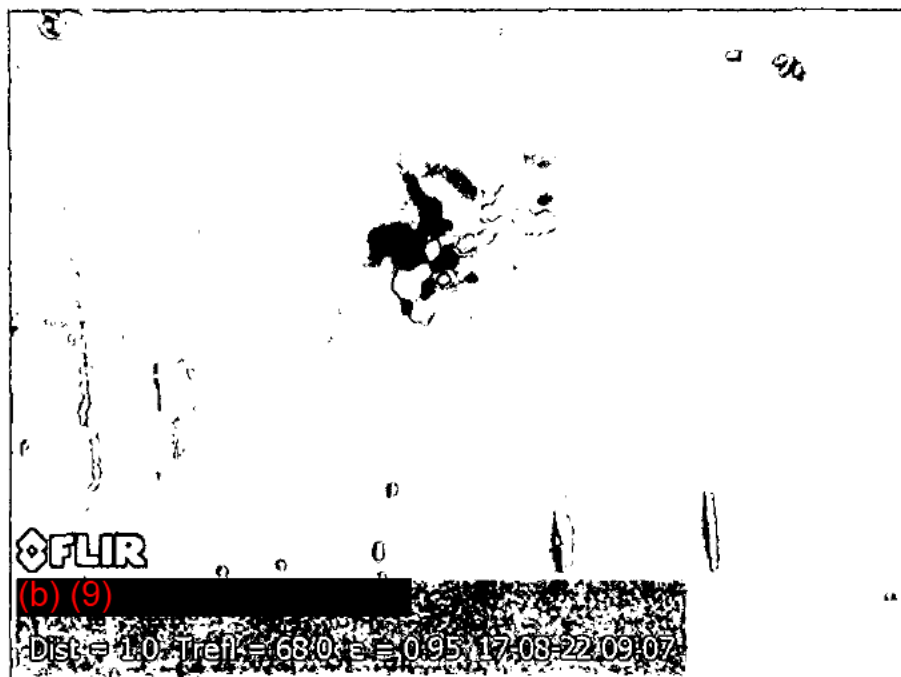


DRAW-20170822-001IR Leaking

Location: 1H GPU Run 2 High- Low Valve

Date & Time: 8/22/2017 9:08:01 AM

Geolocation: (b) (9)



DRAW-20170822-001IR Repaired

Location: 1H GPU Run 2 High- Low Valve

Date & Time: 9/1/2017 9:01:54 AM

Geolocation: (b) (9)



DRAW-20170822-002IR Leaking

Location: 1H GPU Run 1 High- Low Valve

Date & Time: 8/22/2017 9:08:54 AM

Geolocation: (b) (9)

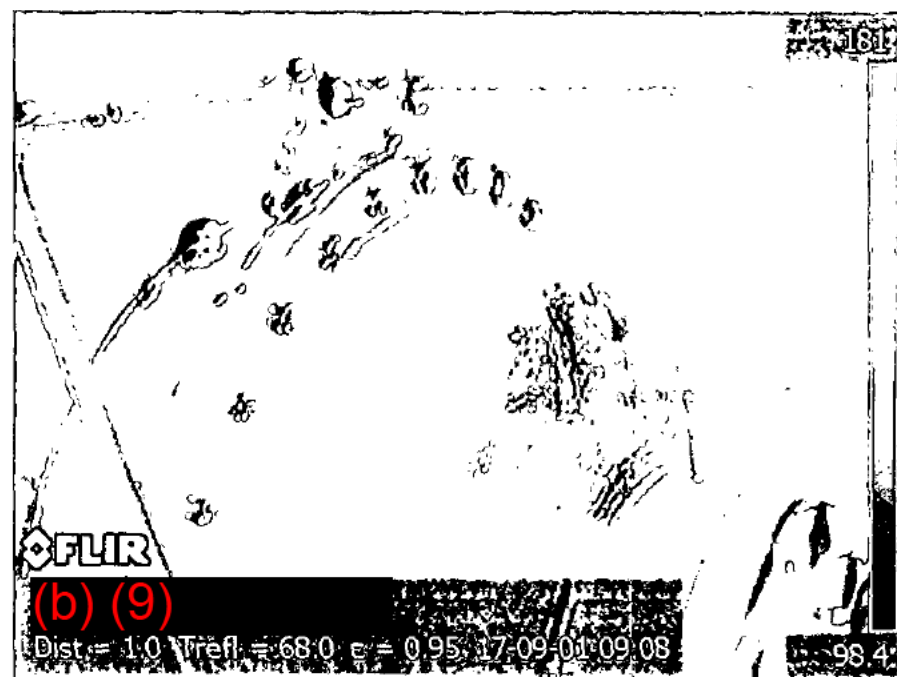


DRAW-20170822-002IR Repaired

Location: 1H GPU Run 1 High- Low Valve

Date & Time: 9/1/2017 9:08:20 AM

Geolocation: (b) (9)



DRAW-20170822-003IR Leaking

Location: 1H GPU Run 2 Fuel Supply Union
Date & Time: 8/22/2017 9:09:36 AM
Geolocation: (b) (9)



DRAW-20170822-003IR Repaired

Location: 1H GPU Run 2 Fuel Supply Union
Date & Time: 8/22/2017 9:17:00 AM
Geolocation: (b) (9)



DRAW-20170822-004IR Leaking

Location: 1H GPU Run 1 Stainless Fitting

Date & Time: 8/22/2017 9:10:28 AM

Geolocation: (b) (9)



DRAW-20170822-004IR Repaired

Location: 1H GPU Run 1 Stainless Fitting

Date & Time: 8/22/2017 9:12:56 AM

Geolocation: (b) (9)



DRAW-20170822-005IR Leaking

Location: 1H GPU Run 1 Main Gas Supply Line

Date & Time: 8/22/2017 9:27:55 AM

Geolocation: (b) (9)

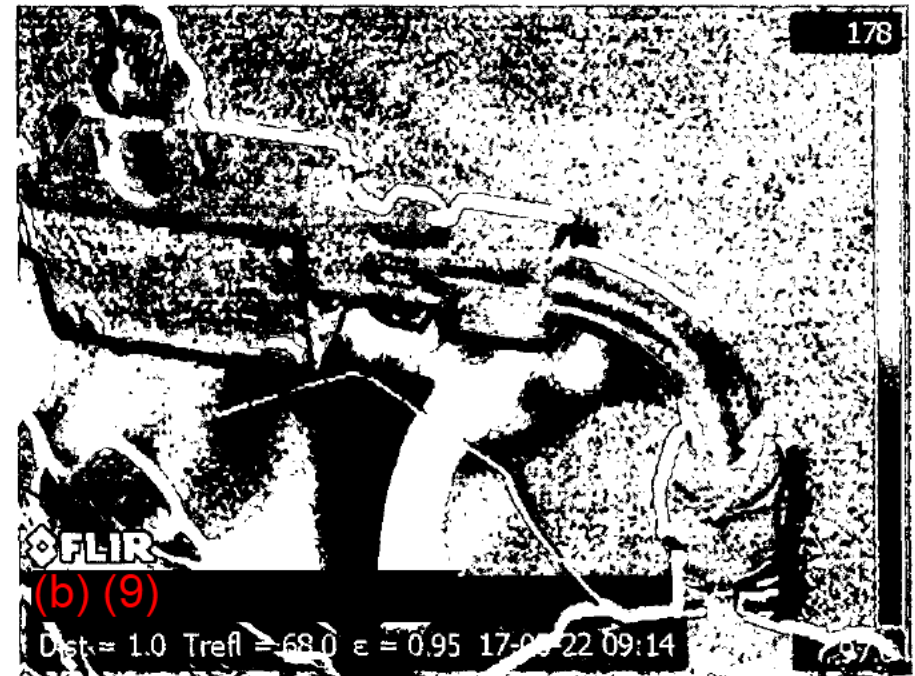


DRAW-20170822-005IR Repaired

Location: 1H GPU Run 1 Main Gas Supply Line

Date & Time: 8/22/2017 9:14:35 AM

Geolocation: (b) (9)



DRAW-20170822-006IR Leaking

Location: 1H GPU Run 1 Stainless Fitting

Date & Time: 8/22/2017 9:15:07 AM

Geolocation: (b) (9)



DRAW-20170822-006IR Repaired

Location: 1H GPU Run 1 Stainless Fitting

Date & Time: 8/22/2017 9:28:31 AM

Geolocation: (b) (9)



DRAW-20170822-007IR Leaking

Location: 3H GPU Run 2 Stainless Fitting

Date & Time: 8/22/2017 9:38:53 AM

Geolocation: (b) (9)
(b) (9)



DRAW-20170822-007IR Repaired

Location: 3H GPU Run 2 Stainless Fitting

Date & Time: 8/22/2017 9:53:53 AM

Geolocation: (b) (9)

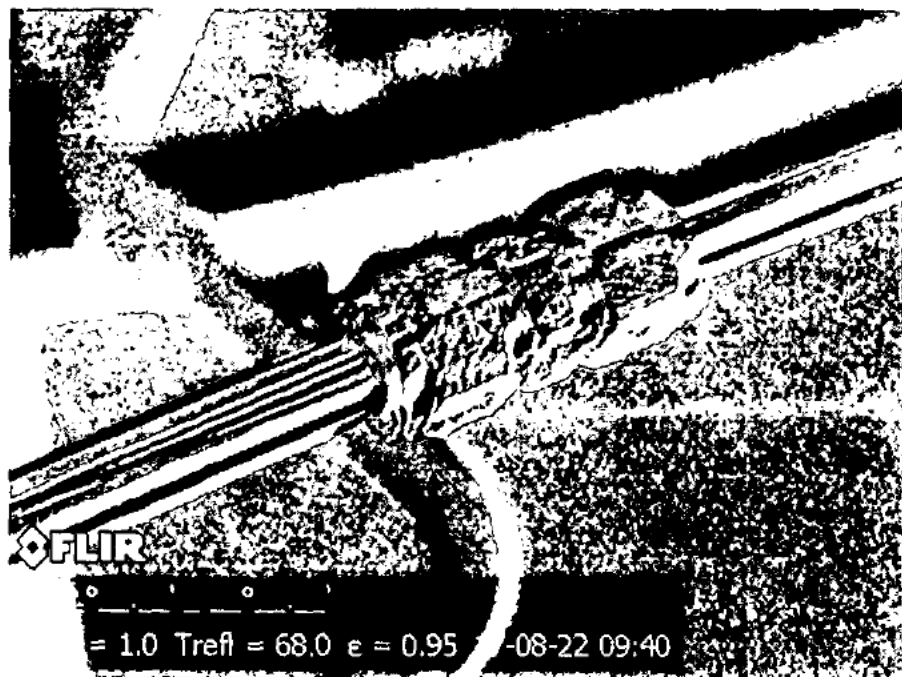


DRAW-20170822-008IR Leaking

Location: 3H GPU Run 2 Pilot Gas

Date & Time: 8/22/2017 9:40:26 AM

Geolocation: (b) (9)

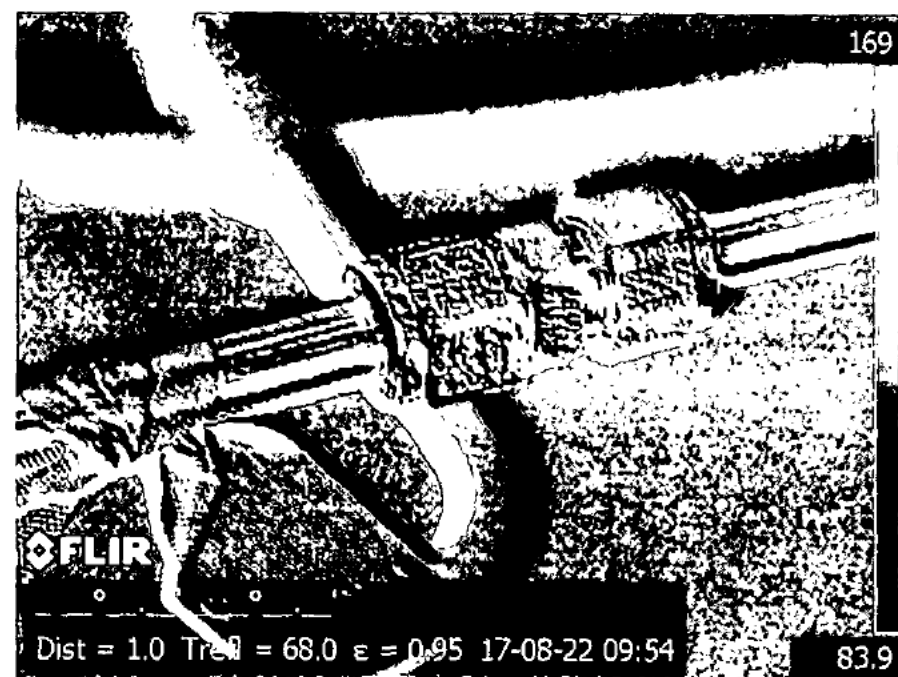


DRAW-20170822-008IR Repaired

Location: 3H GPU Run 2 Pilot Gas

Date & Time: 8/22/2017 9:55:00 AM

Geolocation: (b) (9)

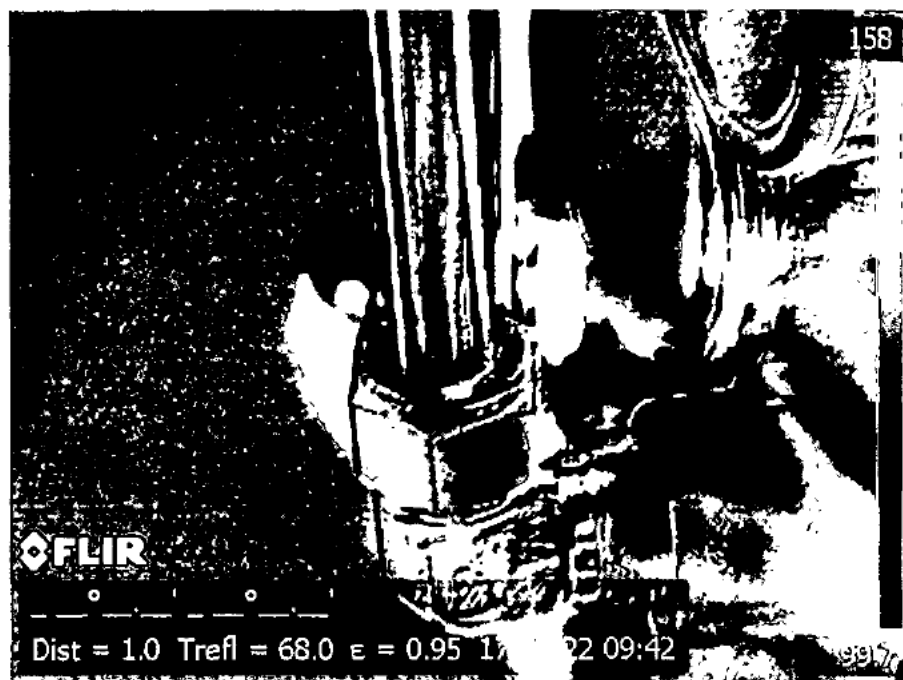


DRAW-20170822-009IR Leaking

Location: 3H GPU Run 1 Fuel Gas Stainless Fitting

Date & Time: 8/22/2017 9:42:19 AM

Geolocation: (b) (9)



DRAW-20170822-009IR Repaired

Location: 3H GPU Run 1 Fuel Gas Stainless Fitting

Date & Time: 8/22/2017 9:56:40 AM

Geolocation: (b) (9)

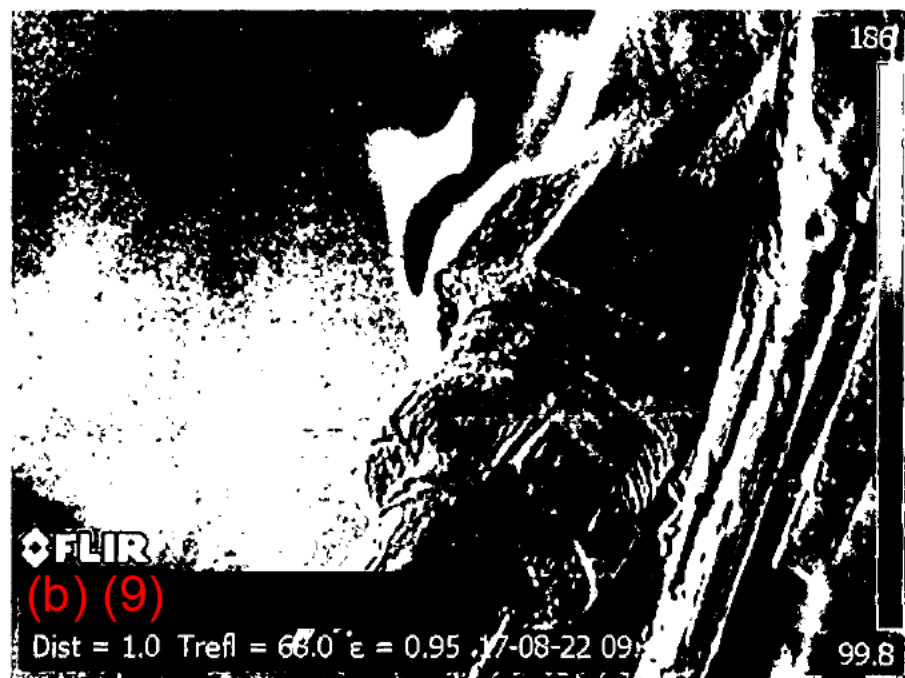


DRAW-20170822-010IR Leaking

Location: 3H GPU Run 1 Fuel Supply to Shutdown

Date & Time: 8/22/2017 9:44:37 AM

Geolocation: (b) (9)



DRAW-20170822-010IR Repaired

Location: 3H GPU Run 1 Fuel Supply to Shutdown

Date & Time: 9/1/2017 9:06:07 AM

Geolocation: (b) (9)





Rice Drilling D LLC
LDAR Inspection Conducted on August 30, 2017
Dragons Breath Well Pad
1H, 3H, 5H, 7H



1 Dane St.
Clarksburg, WV, 26301
304-624-0989
www.premierenergyservices.com



Rice Drilling D LLC

Dragons Breath 1H, 3H, 5H, 7H Leaking Components Report

Inspection Conducted on 08/30/2017

Total Leaking Components	8
Total repairs not made within 30 days	0

Leak #	Location Description	Testing Method	Testing Equipment	Inspection Date	Final Repair Deadline	Repair Date	Corrective Action Description	OGI Retest Date	Repair confirmed with OGI?
DRAG-20170830-001	7H GPU Run 2 High- Low Grease Fitting	OGI	FLIR GF 320	8/30/2017	9/29/2017	9/30/2017	1st Tightened	8/30/2017	YES
DRAG-20170830-002	7H GPU Run 1 Low Level Switch Stainless Fitting	OGI	FLIR GF 320	8/30/2017	9/29/2017	9/30/2017	1st Tightened	8/30/2017	YES
DRAG-20170830-003	7H GPU Run 1 Low Level Switch Stainless Fitting	OGI	FLIR GF 320	8/30/2017	9/29/2017	9/1/2017	1st Replaced	9/1/2017	YES
DRAG-20170830-004	5H GPU Run 1 Low Level Switch Stainless Fitting	OGI	FLIR GF 320	8/30/2017	9/29/2017	9/1/2017	1st Relaped 2nd Tightened	9/1/2017	YES
DRAG-20170830-005	5H GPU Run 2 Stainless Fitting	OGI	FLIR GF 320	8/30/2017	9/29/2017	8/30/2017	1st Tightened	8/30/2017	YES
DRAG-20170830-006	3H GPU Run 2 Union	OGI	FLIR GF 320	8/30/2017	9/29/2017	8/30/2017	1st Tightened	8/30/2017	YES
DRAG-20170830-007	3H GPU Run 1 Stainless Fitting	OGI	FLIR GF 320	8/30/2017	9/29/2017	8/30/2017	1st Tightened	8/30/2017	YES
DRAG-20170830-008	Dehy 1 Thermal well Gauge	OGI	FLIR GF 320	8/30/2017	9/29/2017	9/1/2017	1st Replaced	9/1/2017	YES

Inspection Personnel	OGI Certification Number
(b) (6)	163753

LDAR FLIR Monitoring Form



WELLPAD	Dragons Breath				
ON-SITE CONTACT	Jed Marshall				
DATE TESTED	8/30/2017	START TIME	0730	END TIME	1130
SKY CONDITIONS	Cloudy	AMBIENT TEMP	59	WIND SPEED	1

CAMERA MODEL	FLIR GF 320
CAMERA ID NUMBER	S/N: 44401600
CAMERA CERTIFICATION DATE	8 August 2016
DAILY VERIFICATION DATE	8/30/2017
MAXIMUM VIEWING DISTANCE	25 feet

MONITORING COMPANY	Premier Energy Services, LLC
MONITORING TECHNICIAN	(b) (6)
TECHNICIAN CERTIFIED? (Y/N)	YES
TECHNICIAN YEARS OF EXPERIENCE	2 Months

LEAKS DETECTED (Attach additional sheets if necessary)

	Location Description	Date Detected	Date Repaired	Camera Model and ID for Rescan	Corrective Action Description <u>For Each Attempt</u>
1	7H GPU Run 2 High-Low Grease Fitting	8/30/2017	8/30/2017	FLIR GF 320 S/N: 44401600	1 st Tightened
2	7H GPU Run 1 Low Level Switch Stainless Fitting	8/30/2017	8/30/2017	FLIR GF 320 S/N: 44401600	1 st Tightened
3	7H GPU Run 1 Low Level Switch Stainless Fitting	8/30/2017	9/1/2017	FLIR GF 320 S/N: 44401600	1 st Retaped 2 nd Tightened
4	5H GPU Run 1 Low Level Switch Stainless Fitting	8/30/2017	9/1/2017	FLIR GF 320 S/N: 44401600	1 st Retaped
5	5H GPU Run 2 Stainless Fitting	8/30/2017	8/30/2017	FLIR GF 320 S/N: 44401600	1 st Tightened
6	3H GPU Run 2 Union	8/30/2017	8/30/2017	FLIR GF 320 S/N: 44401600	1 st Tightened

NUMBER OF COMPONENTS NOT REPAIRED DURING INITIAL SCAN (#)	3
ALL UNREPAIRED COMPONENTS HAVE BEEN TAGGED (✓)	✓
NUMBER OF DIFFICULT-TO-MONITOR COMPONENTS SCANNED (#)	0
NUMBER OF UNSAFE-TO-MONITOR COMPONENTS SCANNED (#)	0

LDAR FLIR Monitoring Form



AT LEAST ONE STILL IMAGE IS ATTACHED (✓)	✓
ALL STILL IMAGES ARE DATED AND GIS ENABLED (✓)	✓
LEAKER STILL IMAGES ARE ATTACHED (✓ or N/A)	✓
REPAIR STILL IMAGES ARE ATTACHED (✓ or N/A)	✓
MONITORING PLAN AND OBSERVATION PATH WERE FOLLOWED* (✓)	✓
DELAY OF REPAIR FORMS COMPLETE (✓ or N/A)	N/A

*If either plan or path were not followed, please include a written description and explanation with this form.

ADDITIONAL OHIO CALCULATION:

$$Leak\% = \frac{eak}{Count_{Est}} \times 100\%$$

LEAKER COUNT	8
ESTIMATED COMPONENT COUNT*	1519
LEAK PERCENT**	.52

*Provided by Emission Permitting Specialist or Coordinator; estimated using Subpart W population count factors.

** If Leak Percent is greater than 2.0%, increase monitoring frequency to quarterly.

Signature

(b) (6)

Date:

9/1/17

LDAR FLIR Monitoring Form



LEAKS DETECTED (Attach additional sheets if necessary)

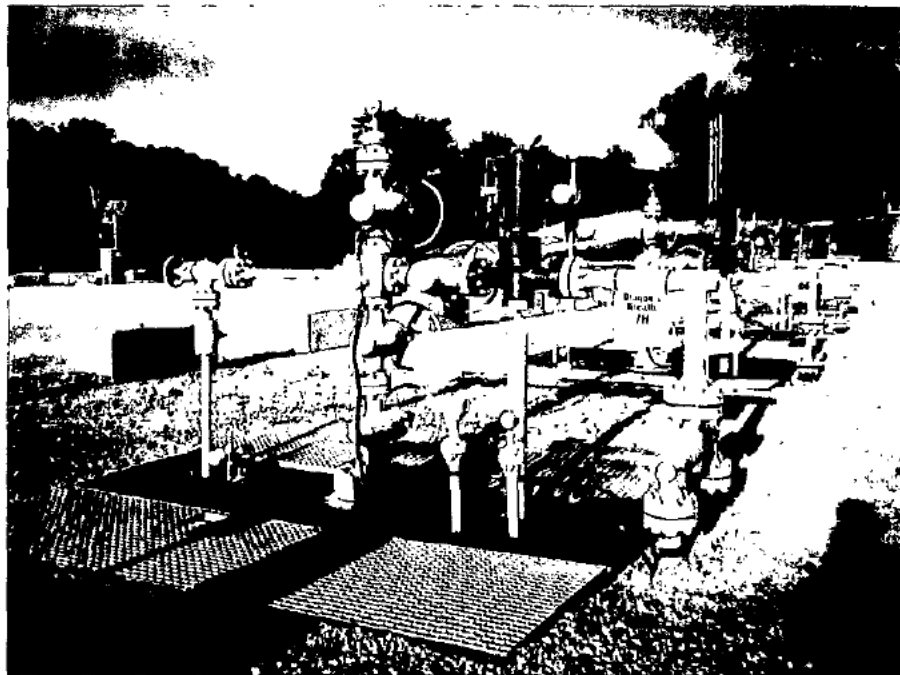
Location Description		Date Detected	Date Repaired	Camera Model and ID for Rescan	Corrective Action Description <i>For Each Attempt</i>
7	3H GPU Run 1 Stainless Fitting	8/30/2017	8/30/2017	FLIR GF 320 S/N: 44401600	1 st Tightened
8	Dehy 1 Thermal well Gauge	8/30/2017	9/1/2017	FLIR GF 320 S/N: 44401600	1 st Retaped

Initial Site Photo

Location: Well Head

Date & Time: 8/30/2017 8:15:27 AM

Geolocation: (b) (9)



Camera Verification Photo

Location: Dehy Stack

Date & Time: 8/30/2017 8:16:38 AM

Geolocation: (b) (9)



DRAG-20170830-001IR Leaking

Location: 7H GPU Run 2 High- Low Grease Fitting

Date & Time: 8/30/2017 8:20:38 AM

Geolocation: (b) (9)
(b) (9)



DRAG-20170830-001IR Repaired

Location: 7H GPU Run 2 High- Low Grease Fitting

Date & Time: 8/30/2017 10:58:45 AM

Geolocation: (b) (9)



DRAG-20170830-002IR Leaking

Location: 7H GPU Run 1 Low Level Switch Stainless Fitting

Date & Time: 8/30/2017 8:30:27 AM

Geolocation: (b) (9)



DRAG-20170830-002IR Repaired

Location: 7H GPU Run 1 Low Level Switch Stainless Fitting

Date & Time: 8/30/2017 11:00:20 AM

Geolocation: (b) (9)



DRAG-20170830-003IR Leaking

Location: 7H GPU Run 1 Low Level Switch Stainless Fitting

Date & Time: 8/30/2017 8:33:12 AM

Geolocation: (b) (9)



DRAG-20170830-003IR Repaired

Location: 7H GPU Run 1 Low Level Switch Stainless Fitting

Date & Time: 9/1/2017 10:54:21 AM

Geolocation: (b) (9)



DRAG-20170830-004IR Leaking

Location: 5H GPU Run 1 Low Level Switch Stainless Fitting

Date & Time: 8/30/2017 8:40:22 AM

Geolocation: (b) (9)

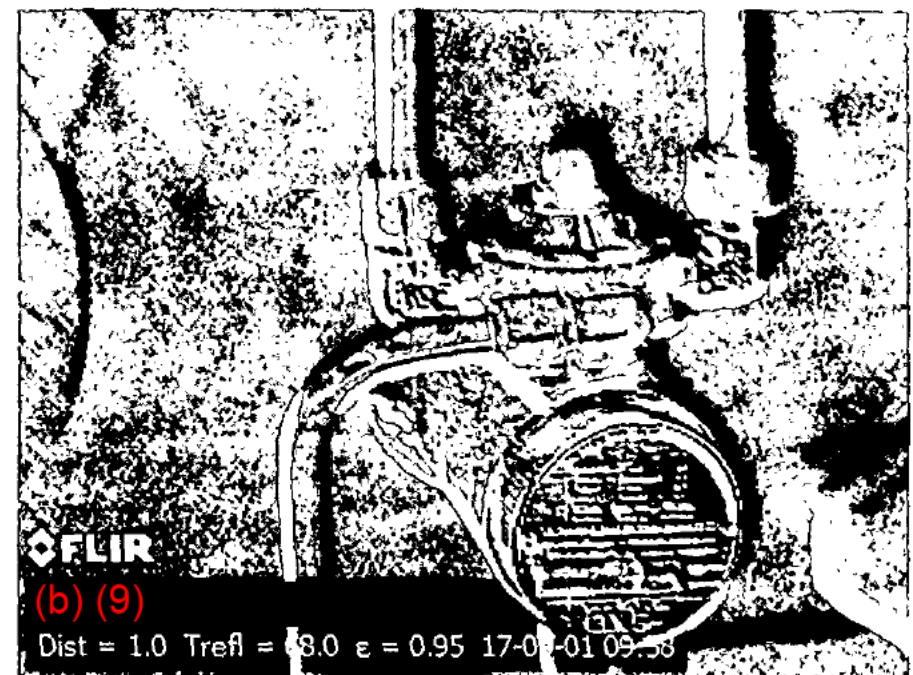


DRAG-20170830-004IR Repaired

Location: 5H GPU Run 1 Low Level Switch Stainless Fitting

Date & Time: 9/1/2017 9:58:58 AM

Geolocation: (b) (9)

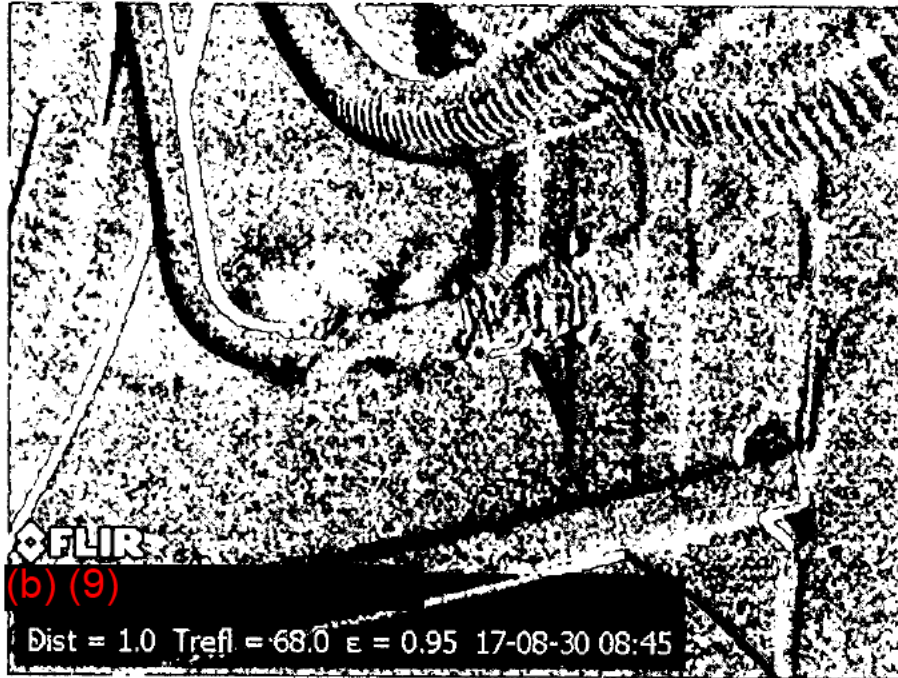


DRAG-20170830-005IR Leaking

Location: 5H GPU Run 2 Stainless Fitting

Date & Time: 8/30/2017 8:45:38 AM

Geolocation: (b) (9)



DRAG-20170830-005IR Repaired

Location: 5H GPU Run 2 Stainless Fitting

Date & Time: 8/30/2017 11:05:43 AM

Geolocation: (b) (9)

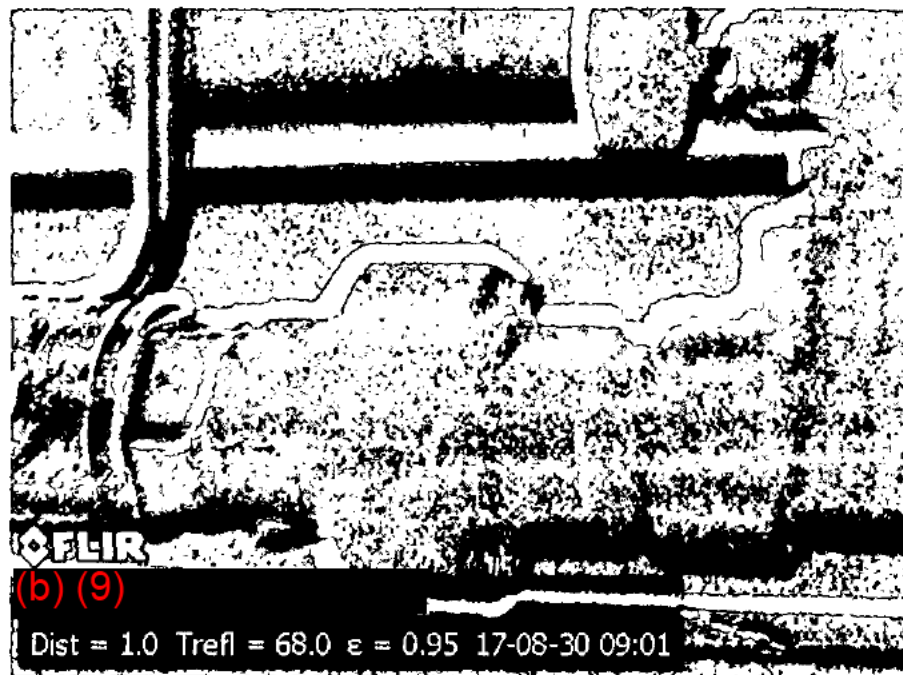


DRAG-20170830-006IR Leaking

Location: 3H GPU Run 2 Union

Date & Time: 8/30/2017 9:01:08 AM

Geolocation: (b) (9)

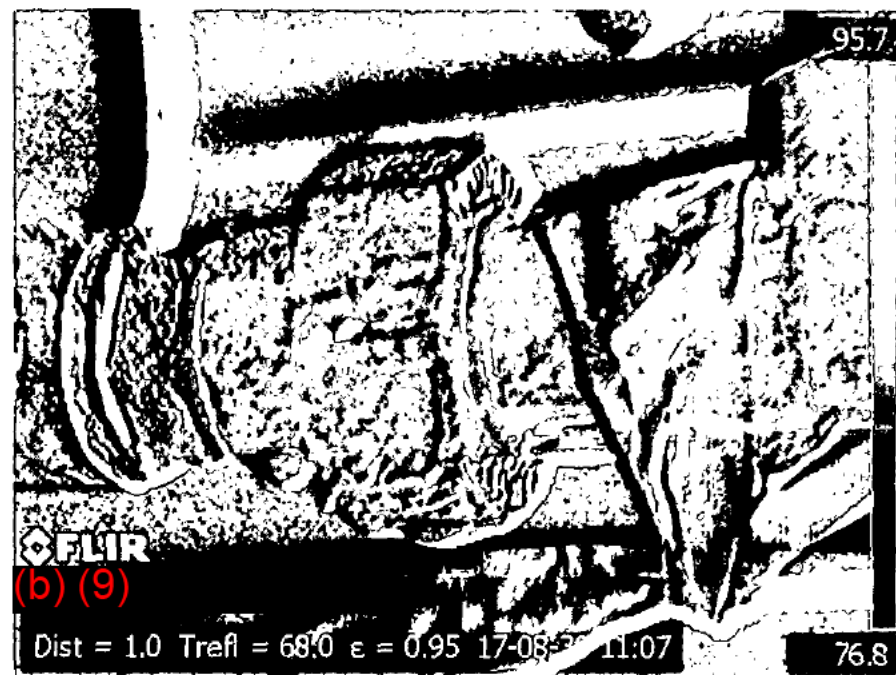


DRAG-20170830-006IR Repaired

Location: 3H GPU Run 2 Union

Date & Time: 8/30/2017 11:07:51 AM

Geolocation: (b) (9)



DRAG-20170830-007IR Leaking

Location: 3H GPU Run 1 Stainless Fitting

Date & Time: 8/30/2017 9:05:42 AM

Geolocation: (b) (9)

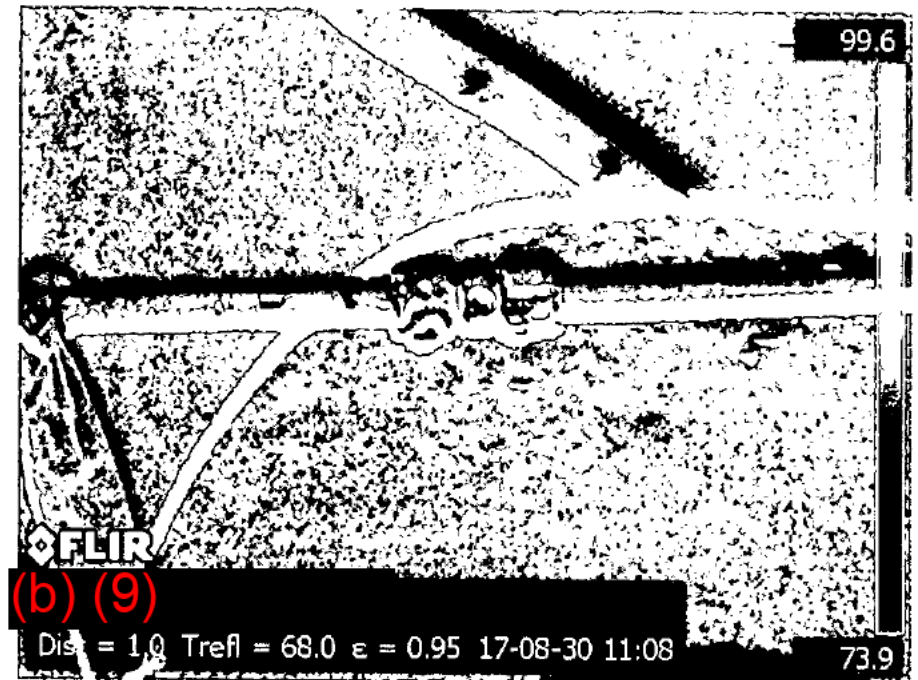


DRAG-20170830-007IR Repaired

Location: 3H GPU Run 1 Stainless Fitting

Date & Time: 8/30/2017 11:08:26 AM

Geolocation: (b) (9)

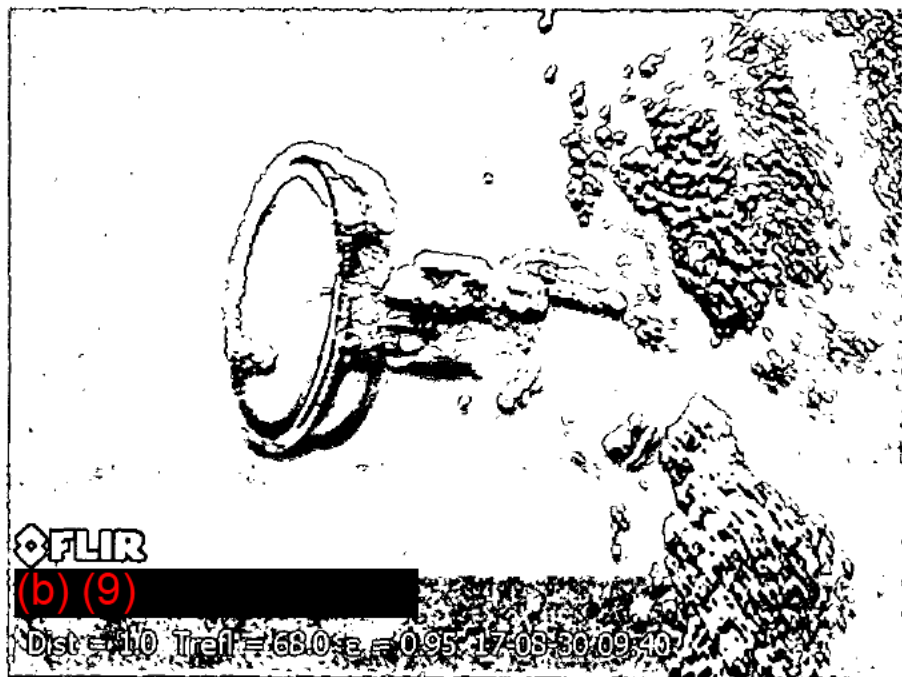


DRAG-20170830-008IR Leaking

Location: Dehy 1 Thermal well Gauge

Date & Time: 8/30/2017 9:40:49 AM

Geolocation: (b) (9)

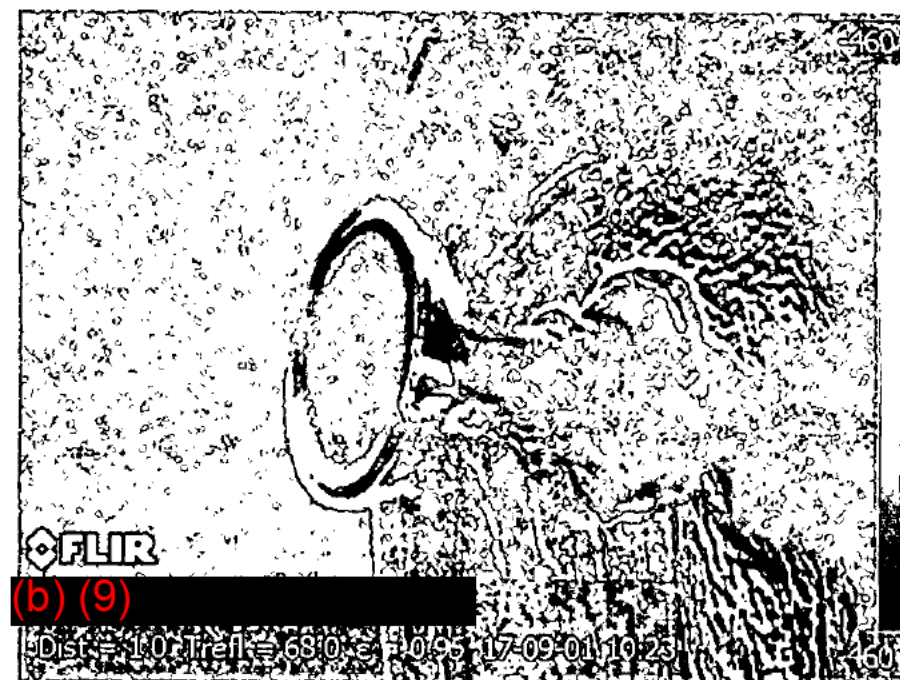


DRAG-20170830-008IR Repaired

Location: Dehy 1 Thermal well Gauge

Date & Time: 9/1/2017 10:23:47 AM

Geolocation: (b) (9)





Rice Drilling D, LLC
LDAR Inspection Conducted on August 16, 2017
Haymaker Well Pad
1H, 3H



1 Dane St.
Clarksburg, WV, 26301
304-624-0989
www.premierenergyservices.com



Rice Drilling D LLC

Haymaker 1H, 3H Leaking Components Report

Inspection Conducted on 08/16/2017

Total Leaking Components	5
Total repairs not made within 30 days	0

Leak #	Location Description	Testing Method	Testing Equipment	Inspection Date	Final Repair Deadline	Repair Date	Corrective Action Description	OGI Retest Date	Repair confirmed with OGI?
HAYM-20170816-001	3H GPU Run 2 High Low Stainless Fitting	OGI	FLIR GF 320	8/16/2017	9/15/2017	8/16/2017	1" Tightened	8/16/2017	YES
HAYM-20170816-002	3H GPU Run 2 Fuel Gas Union	OGI	FLIR GF 320	8/16/2017	9/15/2017	8/16/2017	1" Tightened	8/16/2017	YES
HAYM-20170816-003	3H GPU Run 1 Fuel Gas Stainless Fitting	OGI	FLIR GF 320	8/16/2017	9/15/2017	8/16/2017	1" Tightened	8/16/2017	YES
HAYM-20170816-004	1H GPU Run 2 High Low Stainless Fitting	OGI	FLIR GF 320	8/16/2017	9/15/2017	8/16/2017	1" Tightened	8/16/2017	YES
HAYM-20170816-005	1H GPU Run 2 Fuel Gas Union	OGI	FLIR GF 320	8/16/2017	9/15/2017	8/16/2017	1" Tightened	8/16/2017	YES

Inspection Personnel	OGI Certification Number
(b) (9)	163753

LDAR FLIR Monitoring Form



WELLPAD	Haymaker Wellpad				
ON-SITE CONTACT	Brandon St. Clair				
DATE TESTED	8/16/2017	START TIME	1230	END TIME	1400
SKY CONDITIONS	Clear	AMBIENT TEMP	81	WIND SPEED	3mph

CAMERA MODEL	FLIR GF 320
CAMERA ID NUMBER	S/N: 44401600
CAMERA CERTIFICATION DATE	8 August 2016
DAILY VERIFICATION DATE	8/16/2017
MAXIMUM VIEWING DISTANCE	25 feet

MONITORING COMPANY	Premier Energy Services, LLC
MONITORING TECHNICIAN	(b) (6)
TECHNICIAN CERTIFIED? (Y/N)	YES
TECHNICIAN YEARS OF EXPERIENCE	2 Months

LEAKS DETECTED (Attach additional sheets if necessary)					
	Location Description	Date Detected	Date Repaired	Camera Model and ID for Rescan	Corrective Action Description <i>For Each Attempt</i>
1	3H GPU Run 2 High Low Stainless Fitting	8/16/2017	8/16/2017	FLIR GF 320 S/N: 44401600	1 st Tightened
2	3H GPU Run 2 Fuel Gas Union	8/16/2017	8/16/2017	FLIR GF 320 S/N: 44401600	1 st Tightened
3	3H GPU Run 1 Fuel Gas Stainless Fitting	8/16/2017	8/16/2017	FLIR GF 320 S/N: 44401600	1 st Tightened
4	1H GPU Run 2 High Low Stainless Fitting	8/16/2017	8/16/2017	FLIR GF 320 S/N: 44401600	1 st Tightened
5	1H GPU Run 2 Fuel Gas Union	8/16/2017	8/16/2017	FLIR GF 320 S/N: 44401600	1 st Tightened

NUMBER OF COMPONENTS NOT REPAIRED DURING INITIAL SCAN (#)	0
ALL UNREPAIRED COMPONENTS HAVE BEEN TAGGED (✓)	✓
NUMBER OF DIFFICULT-TO-MONITOR COMPONENTS SCANNED (#)	0
NUMBER OF UNSAFE-TO-MONITOR COMPONENTS SCANNED (#)	0

LDAR FLIR Monitoring Form



AT LEAST ONE STILL IMAGE IS ATTACHED (✓)	✓
ALL STILL IMAGES ARE DATED AND GIS ENABLED (✓)	✓
LEAKER STILL IMAGES ARE ATTACHED (✓ or N/A)	✓
REPAIR STILL IMAGES ARE ATTACHED (✓ or N/A)	✓
MONITORING PLAN AND OBSERVATION PATH WERE FOLLOWED* (✓)	✓
DELAY OF REPAIR FORMS COMPLETE (✓ or N/A)	N/A

*If either plan or path were not followed, please include a written description and explanation with this form.

ADDITIONAL OHIO CALCULATION:

$$Leak\% = \frac{t_{Leak}}{Count_{Est}} \times 100\%$$

LEAKER COUNT	5
ESTIMATED COMPONENT COUNT*	624
LEAK PERCENT**	0.80 %

*Provided by Emission Permitting Specialist or Coordinator; estimated using Subpart W population count factors.

** If Leak Percent is greater than 2.0%, increase monitoring frequency to quarterly.

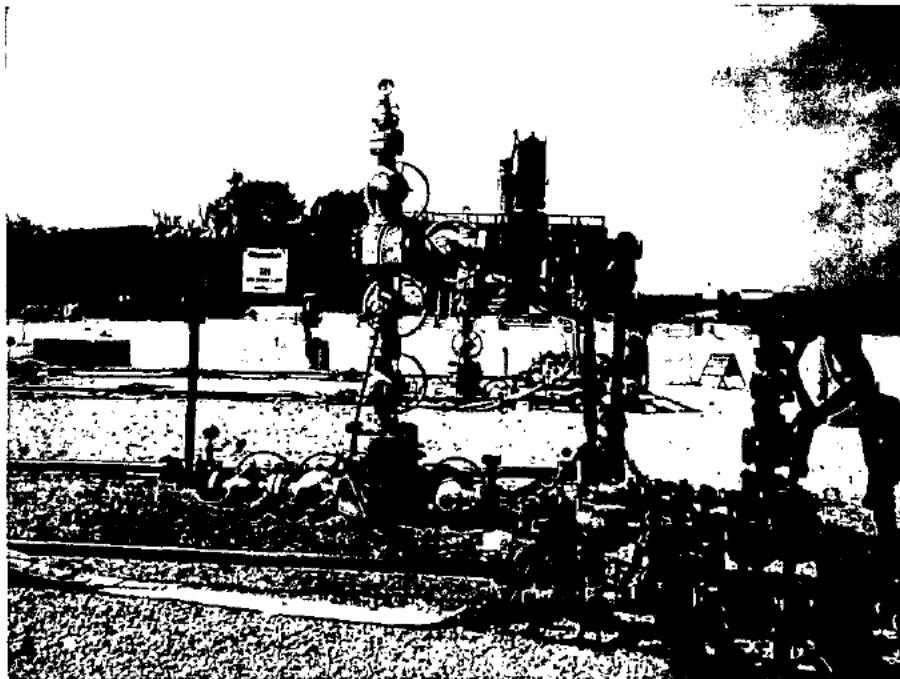
Signature: **(b) (6)** Date: 16 August 2017

Initial Site Photo

Location: Well Head

Date & Time: 8/16/2017 12:42:30 PM

Geolocation: (b) (9)



Camera Verification Photo

Location: GPU Stack

Date & Time: 8/16/2017 12:50:07 PM

Geolocation: (b) (9)



HAYM-20180816-001IR Leaking

Location: 3H GPU Run 2 High Low Stainless Fitting

Date & Time: 8/16/2017 1:10:00 PM

Geolocation: (b) (9)



HAYM-20180816-001IR Repaired

Location: 3H GPU Run 2 High Low Stainless Fitting

Date & Time: 8/16/2017 1:31:52 PM

Geolocation: (b) (9)

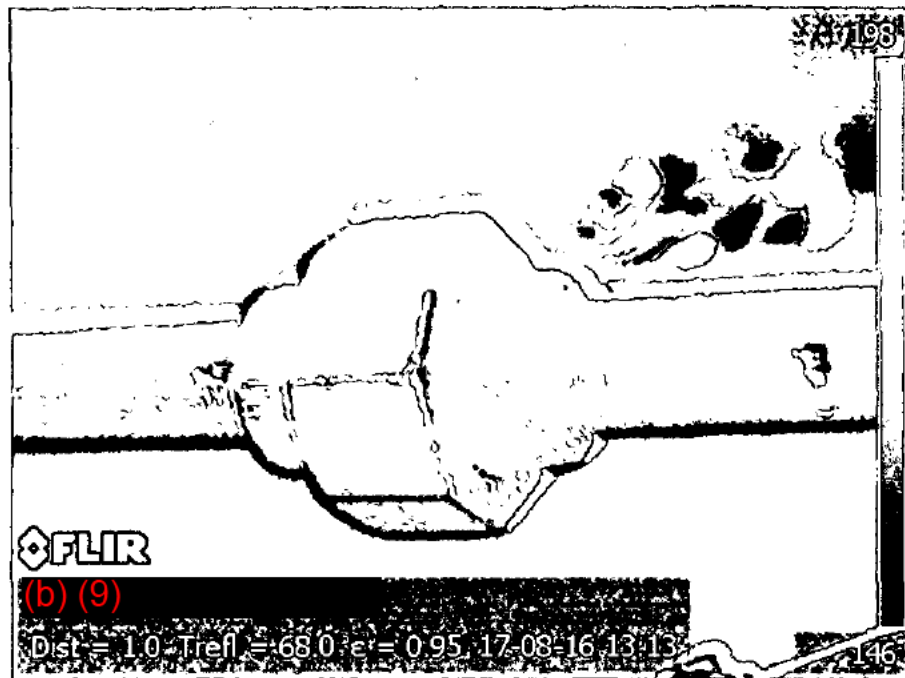


HAYM-20180816-002IR Leaking

Location: 3H GPU Run 2 Fuel Gas Union

Date & Time: 8/16/2017 1:13:11 PM

Geolocation: (b) (9)

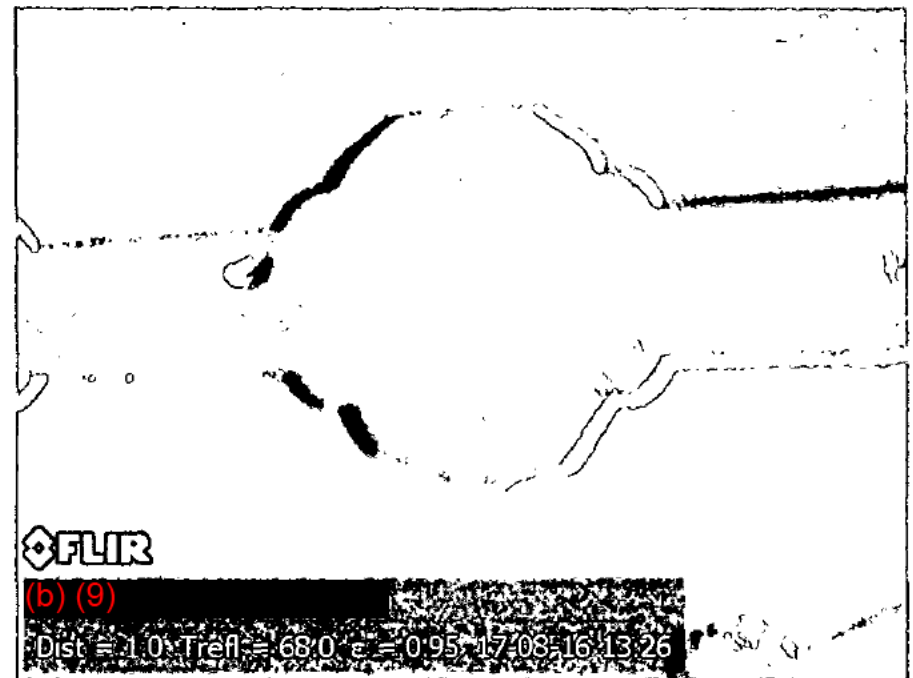


HAYM-20180816-002IR Repaired

Location: 3H GPU Run 2 Fuel Gas Union

Date & Time: 8/16/2017 1:26:03 PM

Geolocation: (b) (9)

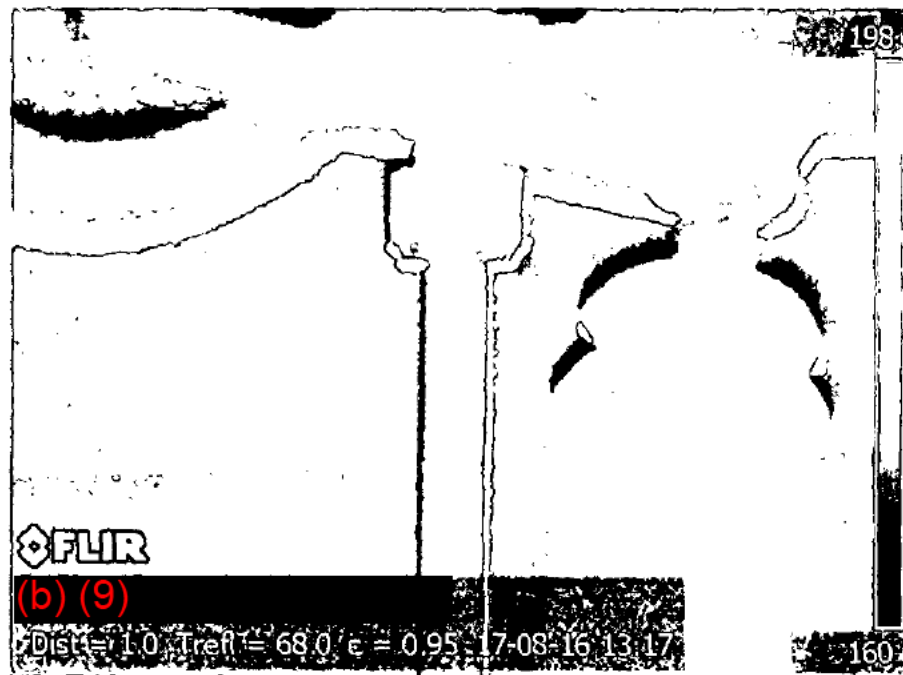


HAYM-20180816-003IR Leaking

Location: 3H GPU Run 1 Fuel Gas Stainless Fitting

Date & Time: 8/16/2017 1:17:30 PM

Geolocation: (b) (9)

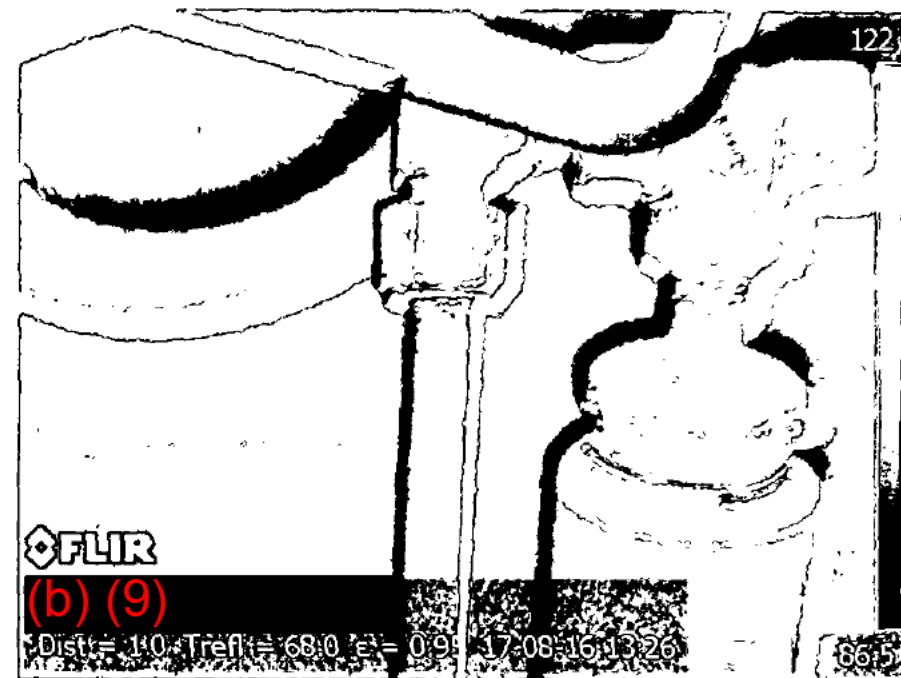


HAYM-20180816-003IR Repaired

Location: 3H GPU Run 1 Fuel Gas Stainless Fitting

Date & Time: 8/16/2017 1:26:54 PM

Geolocation: (b) (9)



HAYM-20180816-004IR Leaking

Location: 1H GPU Run 2 High Low Stainless Fitting

Date & Time: 8/16/2017 1:34:22 PM

Geolocation: (b) (9)



HAYM-20180816-004IR Repaired

Location: 1H GPU Run 2 High Low Stainless Fitting

Date & Time: 8/16/2017 1:41:59 PM

Geolocation: (b) (9)



HAYM-20180816-005IR Leaking

Location: 1H GPU Run 2 Fuel Gas Union

Date & Time: 8/16/2017 1:37:51 PM

Geolocation: (b) (9)

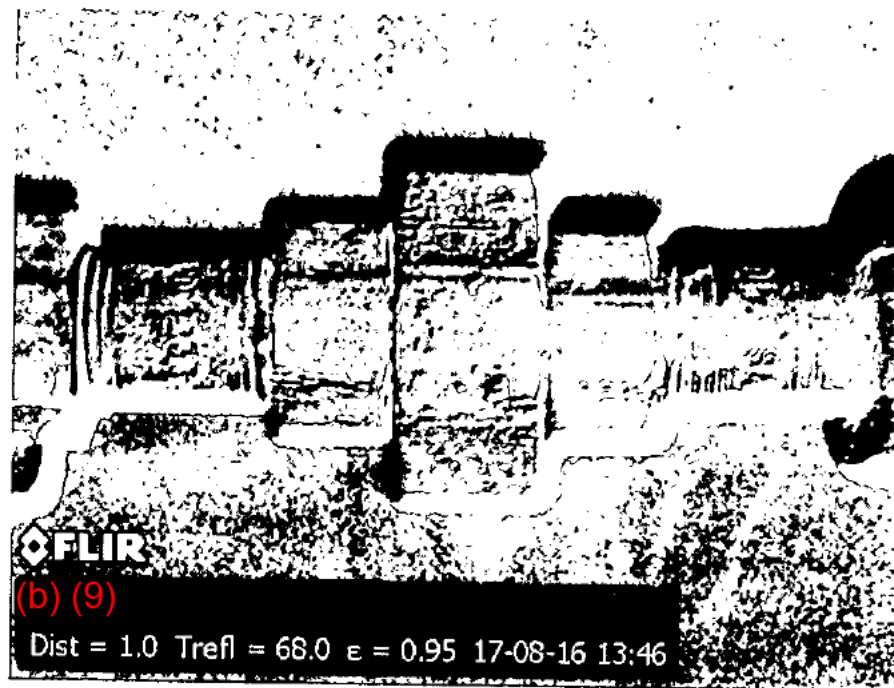


HAYM-20180816-005IR Repaired

Location: 1H GPU Run 2 Fuel Gas Union

Date & Time: 8/16/2017 1:46:20 PM

Geolocation: (b) (9)





Rice Drilling D, LLC
LDAR Inspection Conducted on August 23, 2017
Iron Warrior Well Pad
2H, 4H



1 Dane St.
Clarksburg, WV, 26301
304-624-0989
www.premierenergyservices.com



Rice Drilling D LLC

Iron Warrior 2H, 4H Leaking Components Report

Inspection Conducted on 08/23/2017

Total Leaking Components	5
Total repairs not made within 30 days	0

Leak #	Location Description	Testing Method	Testing Equipment	Inspection Date	Final Repair Deadline	Repair Date	Corrective Action Description	OGI Retest Date	Repair confirmed with OGI?
IRON-20170823-001	2H GPU Run 2 Stainless Fitting	OGI	FLIR GF 320	8/23/2017	9/22/2017	8/23/2017	1st Tightened	8/23/2017	YES
IRON-20170823-002	2H GPU Run 2 Stainless Fitting	OGI	FLIR GF 320	8/23/2017	9/22/2017	8/23/2017	1st Replaced	8/23/2017	YES
IRON-20170823-003	2H GPU Run 2 Level Controller	OGI	FLIR GF 320	8/23/2017	9/22/2017	8/23/2017	1st Replaced	8/23/2017	YES
IRON-20170823-004	Dehy Stainless Fitting	OGI	FLIR GF 320	8/23/2017	9/22/2017	8/23/2017	1st Tightened	8/23/2017	YES
IRON-20170823-005	Fuel Skid Coalescent Filter Level Controller	OGI	FLIR GF 320	8/23/2017	9/22/2017	8/23/2017	1st Tightened	8/23/2017	YES

Inspection Personnel	OGI Certification Number
(b) (6)	163753

LDAR FLIR Monitoring Form



WELLPAD	Iron Warrior wellpad				
ON-SITE CONTACT	Jed Marshall				
DATE TESTED	8/23/2017	START TIME	1045	END TIME	1250
SKY CONDITIONS	Cloudy	AMBIENT TEMP	70	WIND SPEED	8

CAMERA MODEL	FLIR GF 320
CAMERA ID NUMBER	S/N: 44401600
CAMERA CERTIFICATION DATE	8 August 2016
DAILY VERIFICATION DATE	8/23/2017
MAXIMUM VIEWING DISTANCE	25 feet

MONITORING COMPANY	Premier Energy Services, LLC
MONITORING TECHNICIAN	(b) (6)
TECHNICIAN CERTIFIED? (Y/N)	YES
TECHNICIAN YEARS OF EXPERIENCE	2 Months

LEAKS DETECTED (Attach additional sheets if necessary)					
	Location Description	Date Detected	Date Repaired	Camera Model and ID for Rescan	Corrective Action Description <i>For Each Attempt</i>
1	2H GPU Run 2 Stainless Fitting	8/23/2017	8/23/2017	FLIR GF 320 S/N: 44401600	1 st Tightened
2	2H GPU Run 2 Stainless Fitting	8/23/2017	8/23/2017	FLIR GF 320 S/N: 44401600	1 st Replaced
3	2H GPU Run 2 Level Controller	8/23/2017	8/23/2017	FLIR GF 320 S/N: 44401600	1 st Replaced
4	Dehy Stainless Fitting	8/23/2017	8/23/2017	FLIR GF 320 S/N: 44401600	1 st Tightened
5	Fuel Skid Coalescent Filter Level Controller	8/23/2017	8/23/2017	FLIR GF 320 S/N: 44401600	1 st Tightened
6					

NUMBER OF COMPONENTS NOT REPAIRED DURING INITIAL SCAN (#)	0
ALL UNREPAIRED COMPONENTS HAVE BEEN TAGGED (✓)	✓
NUMBER OF DIFFICULT-TO-MONITOR COMPONENTS SCANNED (#)	0
NUMBER OF UNSAFE-TO-MONITOR COMPONENTS SCANNED (#)	0

LDAR FLIR Monitoring Form



AT LEAST ONE STILL IMAGE IS ATTACHED (✓)	✓
ALL STILL IMAGES ARE DATED AND GIS ENABLED (✓)	✓
LEAKER STILL IMAGES ARE ATTACHED (✓ or N/A)	✓
REPAIR STILL IMAGES ARE ATTACHED (✓ or N/A)	✓
MONITORING PLAN AND OBSERVATION PATH WERE FOLLOWED* (✓)	✓
DELAY OF REPAIR FORMS COMPLETE (✓ or N/A)	N/A

*If either plan or path were not followed, please include a written description and explanation with this form.

ADDITIONAL OHIO CALCULATION:

$$Leak\% = \frac{n_{Leak}}{Count_{Est}} \times 100\%$$

LEAKER COUNT	5
ESTIMATED COMPONENT COUNT*	788
LEAK PERCENT**	.63

*Provided by Emission Permitting Specialist or Coordinator; estimated using Subpart W population count factors.

** If Leak Percent is greater than 2.0%, increase monitoring frequency to quarterly.

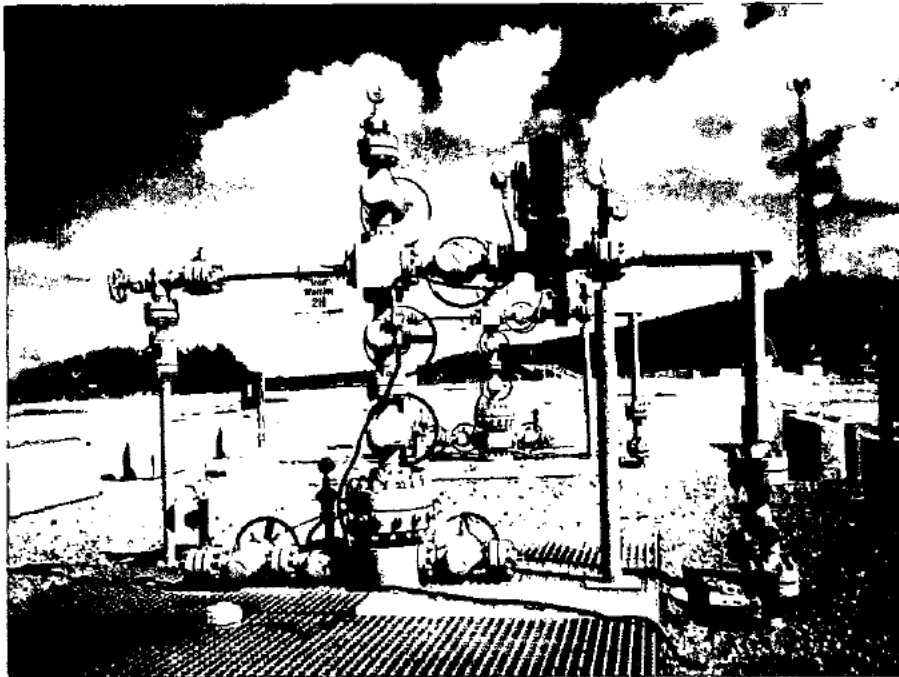
Signature: **(b) (6)** Date: 23 August 2017

Initial Site Photo

Location: Well Head

Date & Time: 8/23/2017 11:01:33 AM

Geolocation: (b) (9)

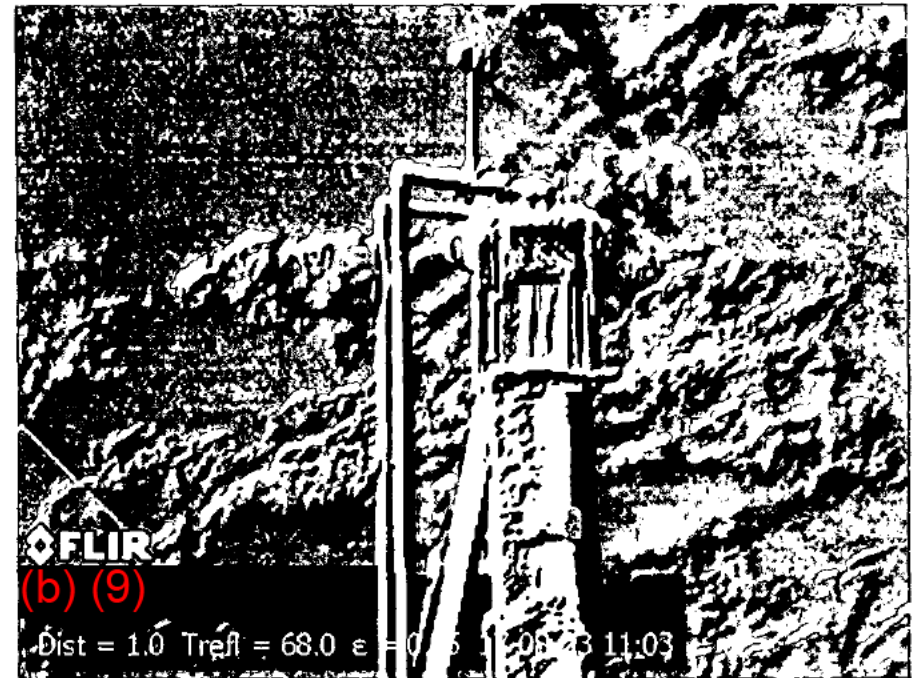


Camera Verification Photo

Location: Dehy Stack

Date & Time: 8/23/2017 11:03:41 AM

Geolocation: (b) (9)

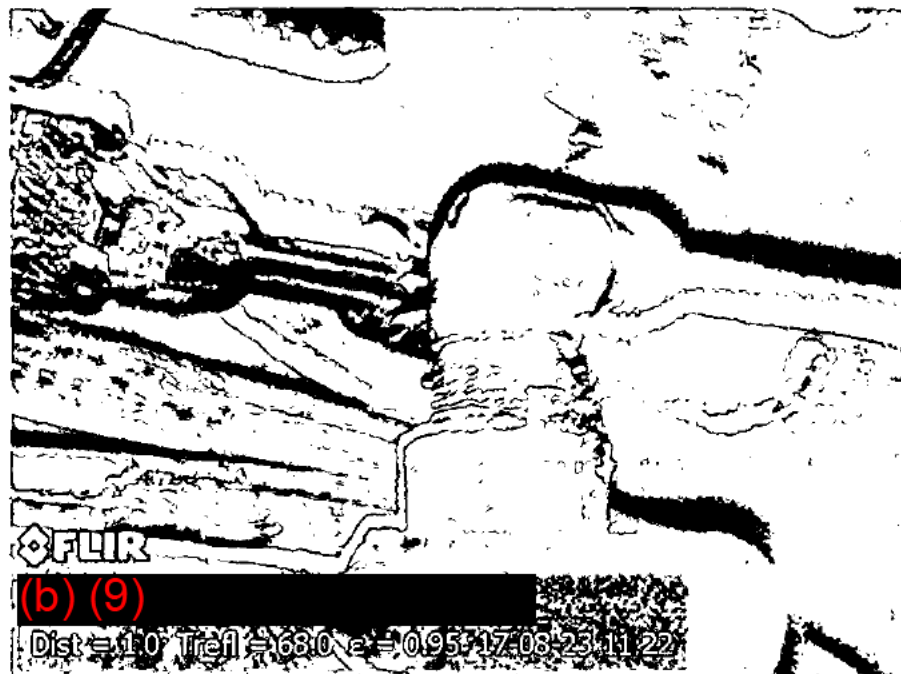


IRON-20170823-001IR Leaking

Location: 2H GPU Run 2 Stainless Fitting

Date & Time: 8/23/2017 11:22:51 AM

Geolocation: (b) (9)

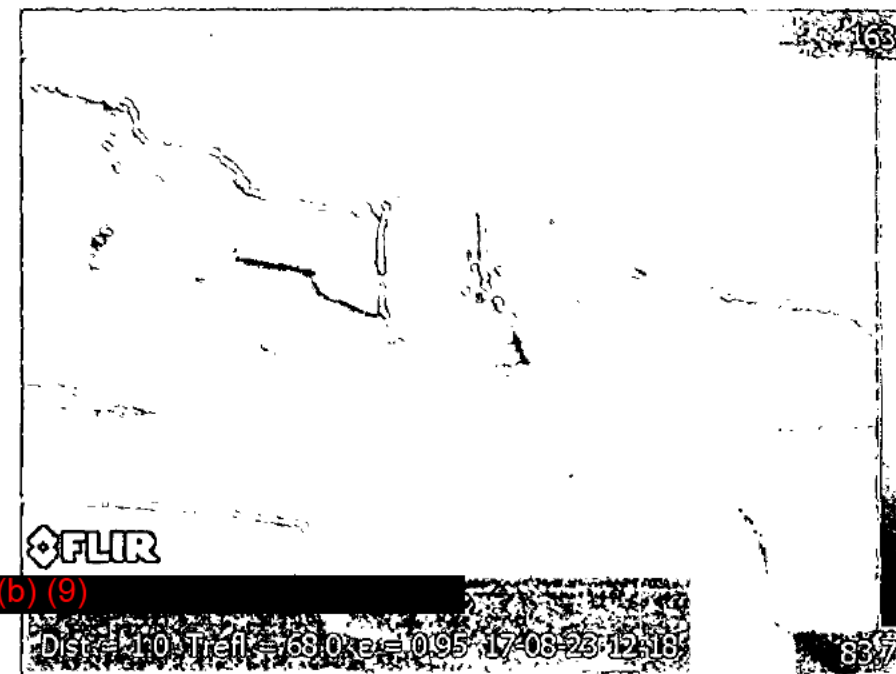


IRON-20170823-001IR Repaired

Location: 2H GPU Run 2 Stainless Fitting

Date & Time: 8/23/2017 12:19:00 PM

Geolocation: (b) (9)

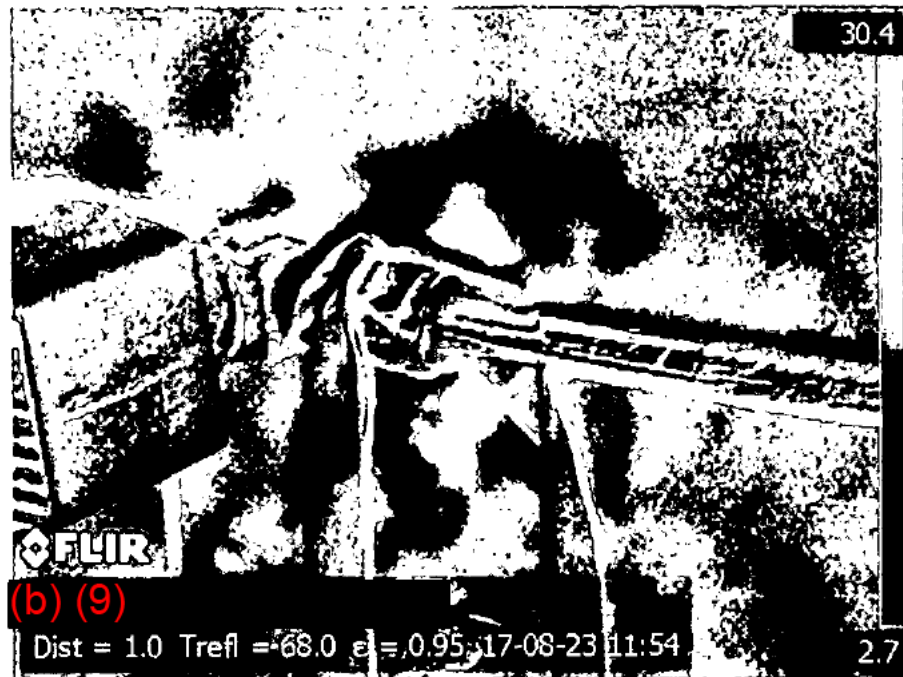


IRON-20170823-002IR Leaking

Location: 2H GPU Run 2 Stainless Fitting

Date & Time: 8/23/2017 11:54:03 AM

Geolocation: (b) (9)

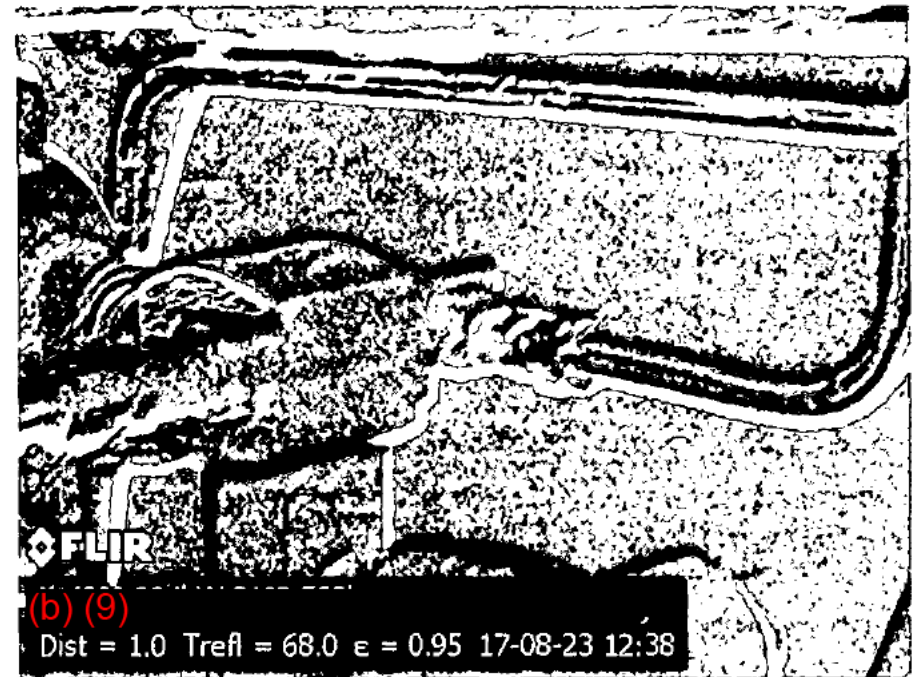


IRON-20170823-002IR Repaired

Location: 2H GPU Run 2 Stainless Fitting

Date & Time: 8/23/2017 12:38:51 PM

Geolocation: (b) (9)

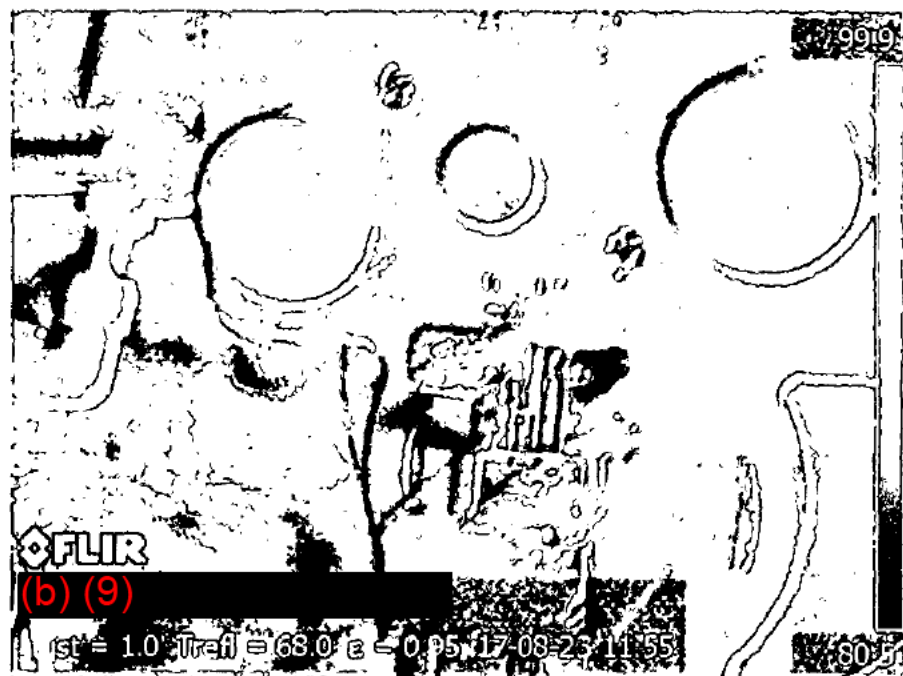


IRON-20170823-003IR Leaking

Location: 2H GPU Run 2 Level Controller

Date & Time: 8/23/2017 11:55:36 AM

Geolocation: (b) (9)

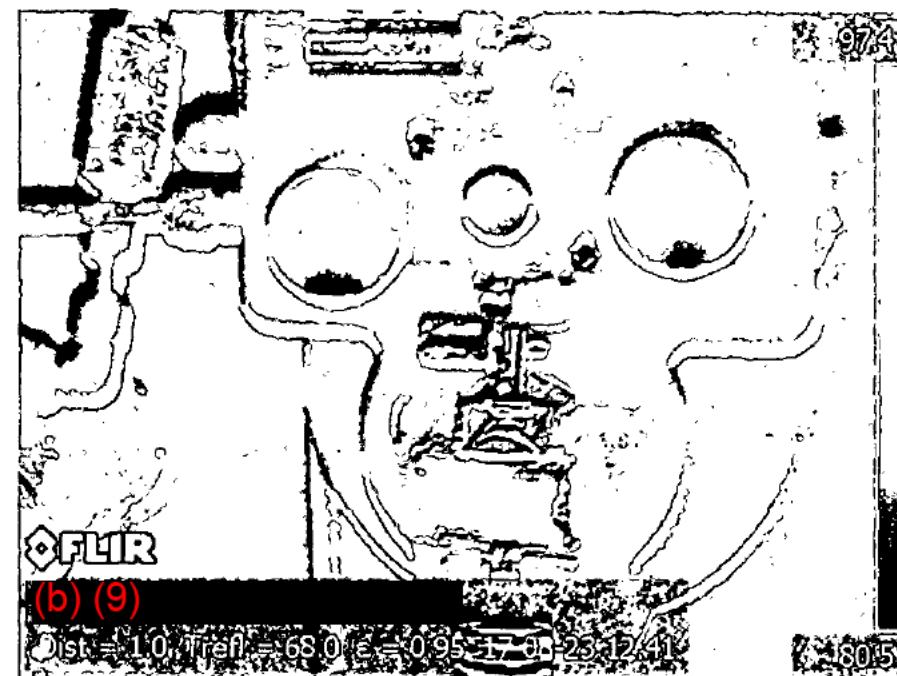


IRON-20170823-003IR Repaired

Location: 2H GPU Run 2 Level Controller

Date & Time: 8/23/2017 12:41:39 PM

Geolocation: (b) (9)



IRON-20170823-004IR Leaking

Location: Dehy Stainless Fitting

Date & Time: 8/23/2017 11:57:15 AM

Geolocation: (b) (9)

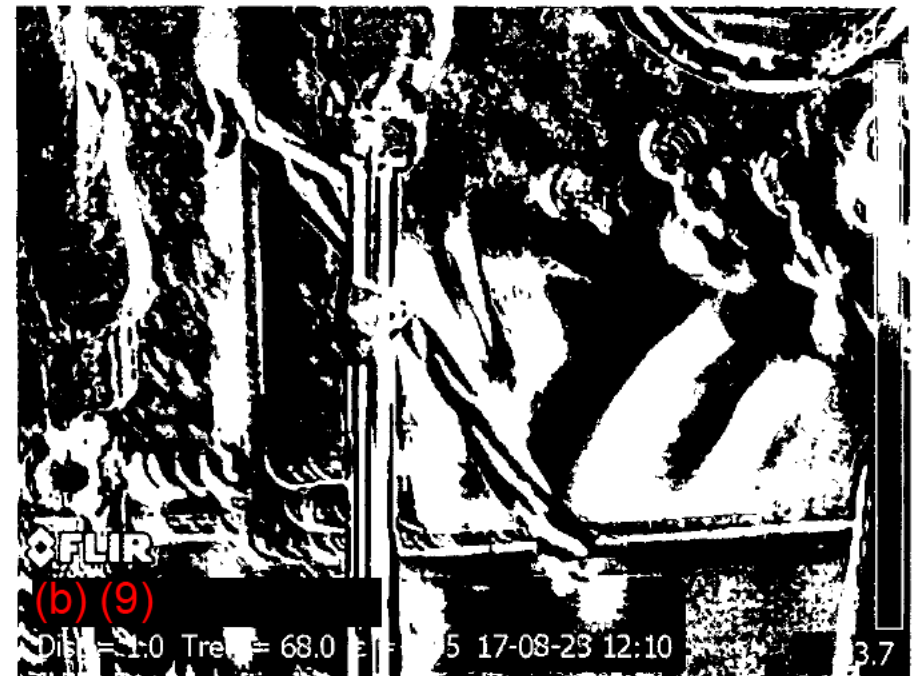


IRON-20170823-004IR Repaired

Location: Dehy Stainless Fitting

Date & Time: 8/23/2017 12:10:20 PM

Geolocation: (b) (9)

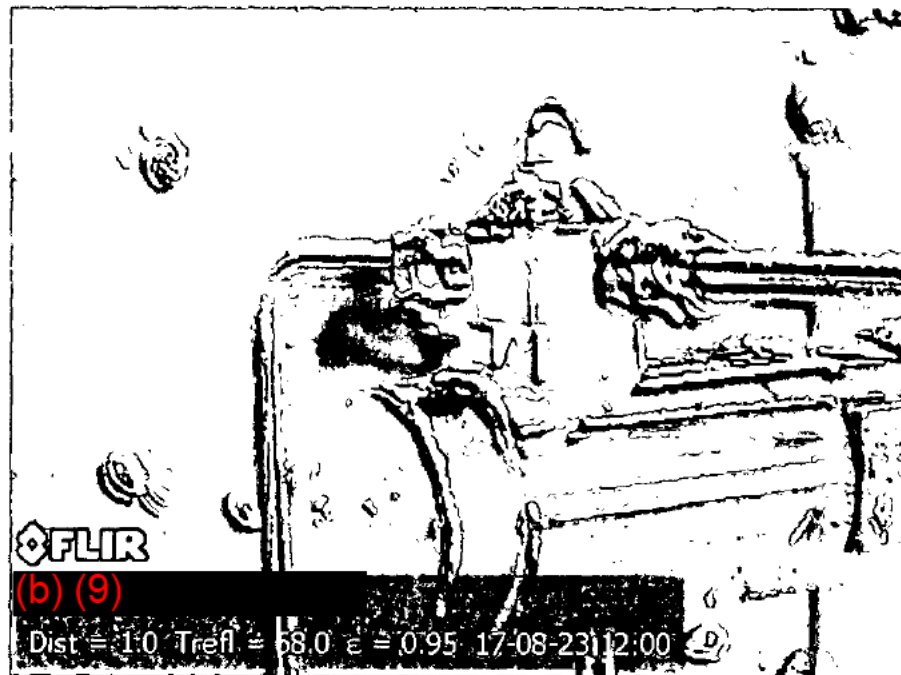


IRON-20170823-005IR Leaking

Location: Fuel Skid Coalescent Filter Level Controller

Date & Time: 8/23/2017 12:00:10 PM

Geolocation: (b) (9)

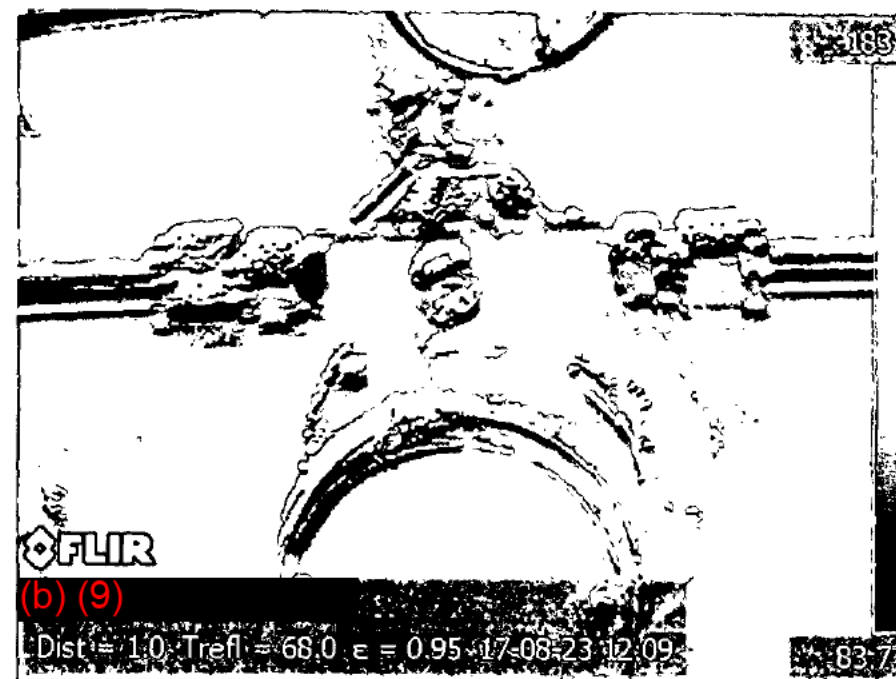


IRON-20170823-005IR Repaired

Location: Fuel Skid Coalescent Filter Level Controller

Date & Time: 8/23/2017 12:09:20 PM

Geolocation: (b) (9)





Rice Drilling D LLC
LDAR Inspection Conducted on August 24, 2017
Junkyard Dog Well Pad
1H, 3H



1 Dane St.
Clarksburg, WV, 26301
304-624-0989
www.premierenergyservices.com



Rice Drilling D LLC

Junkyard Dog 1H, 3H Leaking Components Report

Inspection Conducted on 08/24/2017

Total Leaking Components	6
Total repairs not made within 30 days	0

Leak #	Location Description	Testing Method	Testing Equipment	Inspection Date	Final Repair Deadline	Repair Date	Corrective Action Description	OGI Retest Date	Repair confirmed with OGI?
JUNK-20170824-001	2H Well Head Grease Fitting	OGI	FLIR GF 320	8/24/2017	9/23/2017	8/24/2017	1st Tighted	8/24/2017	YES
JUNK-20170824-002	3H GPU Run 2 Grease Fitting	OGI	FLIR GF 320	8/24/2017	9/23/2017	8/24/2017	1st Tighted	8/24/2017	YES
JUNK-20170824-003	3H GPU Run 1 High- Low Quick Exhaust	OGI	FLIR GF 320	8/24/2017	9/23/2017	8/24/2017	1st Tighted	8/24/2017	YES
JUNK-20170824-004	3H GPU Run 2 Stainless Fitting	OGI	FLIR GF 320	8/24/2017	9/23/2017	8/24/2017	1st Tighted	8/24/2017	YES
JUNK-20170824-005	1H GPU Run 2 High- Low Quick Exhaust	OGI	FLIR GF 320	8/24/2017	9/23/2017	8/24/2017	1st Retaped	8/24/2017	YES
JUNK-20170824-006	1H GPU Run 1 Main Burner Stainless Fitting	OGI	FLIR GF 320	8/24/2017	9/23/2017	8/24/2017	1st Tighted	8/24/2017	YES

Inspection Personnel	OGI Certification Number
(b) (9)	163753

LDAR FLIR Monitoring Form



WELLPAD	Junkyard Dog wellpad				
ON-SITE CONTACT	Justin Stoner				
DATE TESTED	8/24/2017	START TIME	1530	END TIME	1645
SKY CONDITIONS	Clear	AMBIENT TEMP	75	WIND SPEED	9 mph

CAMERA MODEL	FLIR GF 320
CAMERA ID NUMBER	S/N: 44401600
CAMERA CERTIFICATION DATE	8 August 2016
DAILY VERIFICATION DATE	8/24/2017
MAXIMUM VIEWING DISTANCE	25 feet

MONITORING COMPANY	Premier Energy Services, LLC
MONITORING TECHNICIAN	(b) (6)
TECHNICIAN CERTIFIED? (Y/N)	YES
TECHNICIAN YEARS OF EXPERIENCE	2 Months

LEAKS DETECTED (Attach additional sheets if necessary)

	Location Description	Date Detected	Date Repaired	Camera Model and ID for Rescan	Corrective Action Description <i>For Each Attempt</i>
1	2H Well Head Grease Fitting	8/24/2017	8/24/2017	FLIR GF 320 S/N: 44401600	1 st Tightened
2	3H GPU Run 2 Grease Fitting	8/24/2017	8/24/2017	FLIR GF 320 S/N: 44401600	1 st Tightened
3	3H GPU Run 1 High-Low Quick Exhaust	8/24/2017	8/24/2017	FLIR GF 320 S/N: 44401600	1 st Tightened
4	3H GPU Run 2 Stainless Fitting	8/24/2017	8/24/2017	FLIR GF 320 S/N: 44401600	1 st Tightened
5	1H GPU Run 2 High-Low Quick Exhaust	8/24/2017	8/24/2017	FLIR GF 320 S/N: 44401600	1 st Retaped
6	1H GPU Run 1 Main Burner Stainless Fitting	8/24/2017	8/24/2017	FLIR GF 320 S/N: 44401600	1 st Tightened

NUMBER OF COMPONENTS NOT REPAIRED DURING INITIAL SCAN (#)	0
ALL UNREPAIRED COMPONENTS HAVE BEEN TAGGED (✓)	✓
NUMBER OF DIFFICULT-TO-MONITOR COMPONENTS SCANNED (#)	0
NUMBER OF UNSAFE-TO-MONITOR COMPONENTS SCANNED (#)	0

LDAR FLIR Monitoring Form



AT LEAST ONE STILL IMAGE IS ATTACHED (✓)	✓
ALL STILL IMAGES ARE DATED AND GIS ENABLED (✓)	✓
LEAKER STILL IMAGES ARE ATTACHED (✓ or N/A)	✓
REPAIR STILL IMAGES ARE ATTACHED (✓ or N/A)	✓
MONITORING PLAN AND OBSERVATION PATH WERE FOLLOWED* (✓)	✓
DELAY OF REPAIR FORMS COMPLETE (✓ or N/A)	N/A

*If either plan or path were not followed, please include a written description and explanation with this form.

ADDITIONAL OHIO CALCULATION:

$$Leak\% = \frac{t_{Leak}}{Count_{Est}} \times 100\%$$

LEAKER COUNT	6
ESTIMATED COMPONENT COUNT*	624
LEAK PERCENT**	.96

*Provided by Emission Permitting Specialist or Coordinator; estimated using Subpart W population count factors.

** If Leak Percent is greater than 2.0%, increase monitoring frequency to quarterly.

Signature: _____

(b) (6)

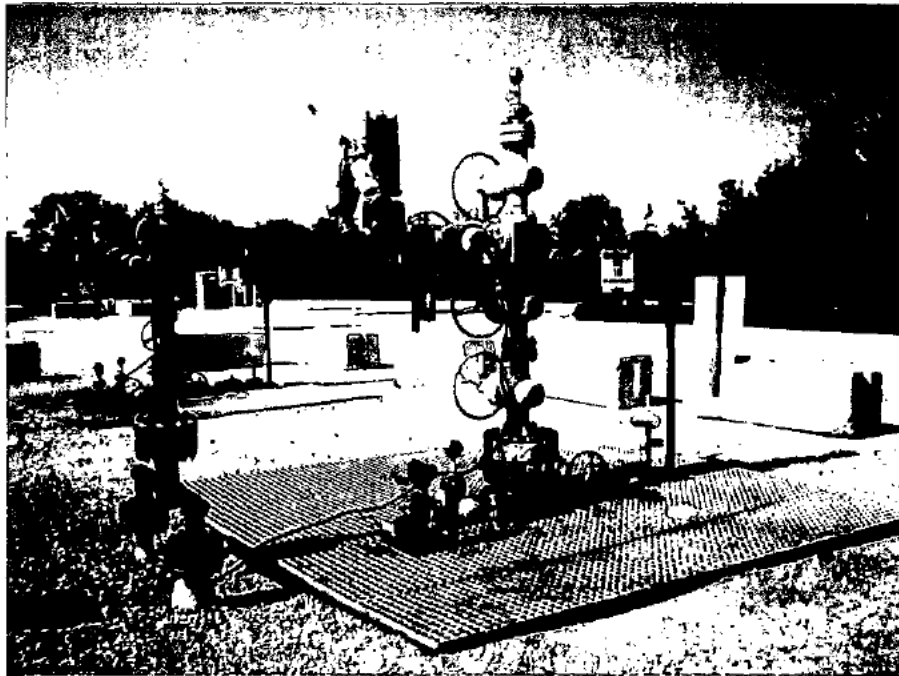
Date: 24 August 2017

Initial Site Photo

Location: Well Head

Date & Time: 8/24/2017 4:04:35 PM

Geolocation: (b) (9)

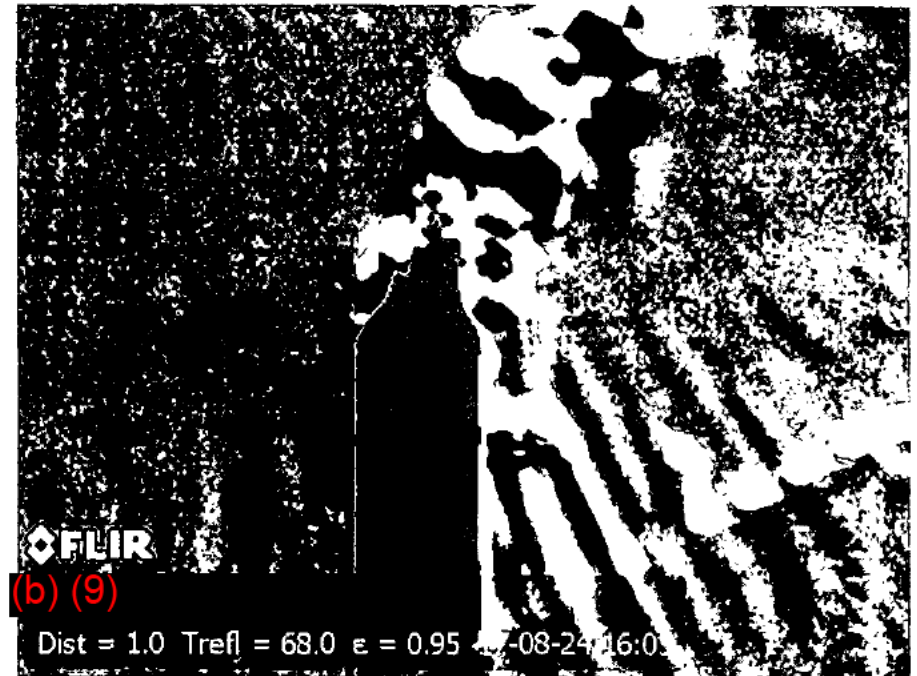


Camera Verification Photo

Location: GPU Stack

Date & Time: 8/24/2017 4:05:35 PM

Geolocation: (b) (9)



JUNK-20170824-001IR Leaking

Location: 2H Well Head Grease Fitting

Date & Time: 8/24/2017 4:09:01 PM

Geolocation: (b) (9)



JUNK-20170824-001IR Repaired

Location: 2H Well Head Grease Fitting

Date & Time: 8/24/2017 4:57:21 PM

Geolocation: (b) (9)



JUNK-20170824-002IR Leaking

Location: 3H GPU Run 2 Grease Fitting

Date & Time: 8/24/2017 4:24:33 PM

Geolocation: (b) (9)

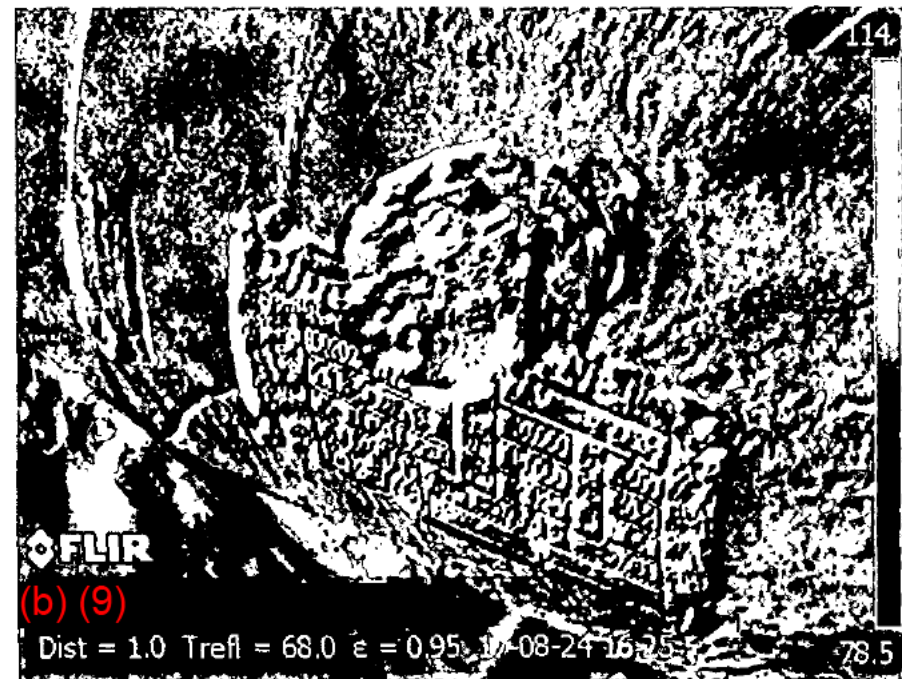


JUNK-20170824-002IR Repaired

Location: 3H GPU Run 2 Grease Fitting

Date & Time: 8/24/2017 4:25:25 PM

Geolocation: (b) (9)

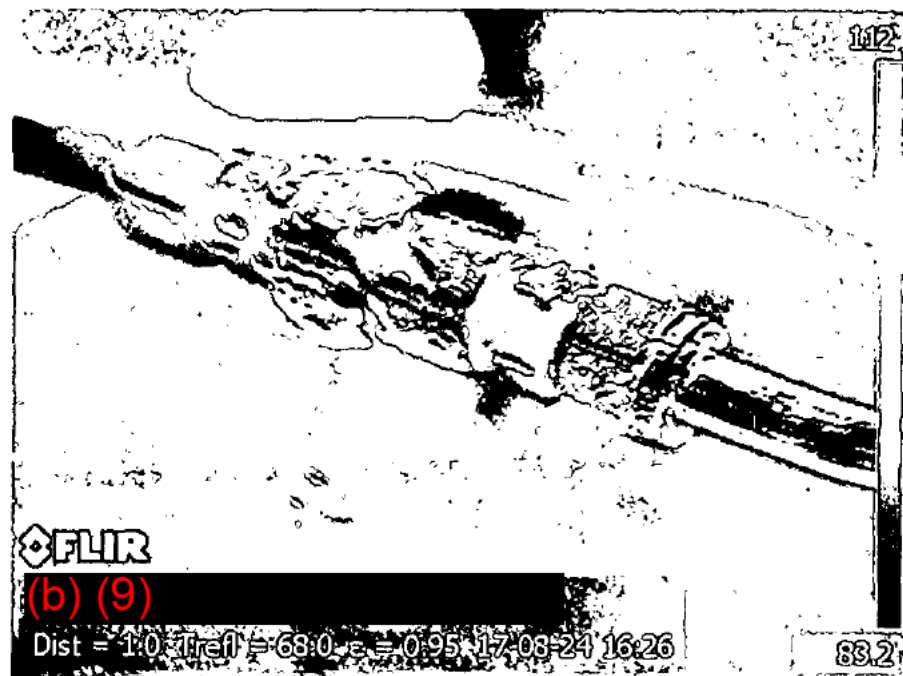


JUNK-20170824-003IR Leaking

Location: 3H GPU Run 1 High- Low Quick Exhaust

Date & Time: 8/24/2017 4:26:46 PM

Geolocation: (b) (9)

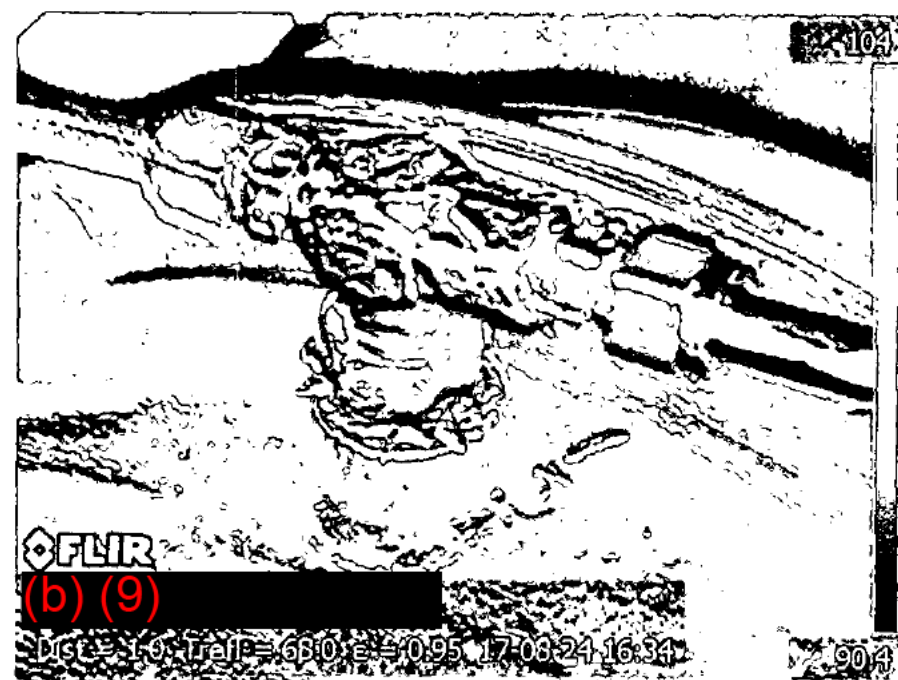


JUNK-20170824-003IR Repaired

Location: 3H GPU Run 1 High- Low Quick Exhaust

Date & Time: 8/24/2017 4:34:26 PM

Geolocation: (b) (9)

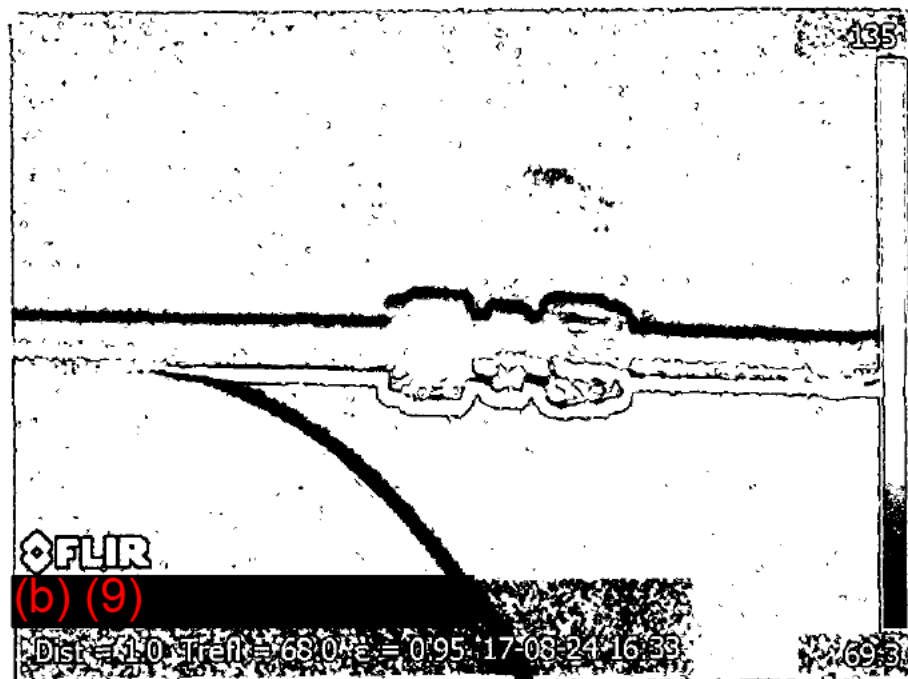


JUNK-20170824-004IR Leaking

Location: 3H GPU Run 2 Stainless Fitting

Date & Time: 8/24/2017 4:33:27 PM

Geolocation: (b) (9)

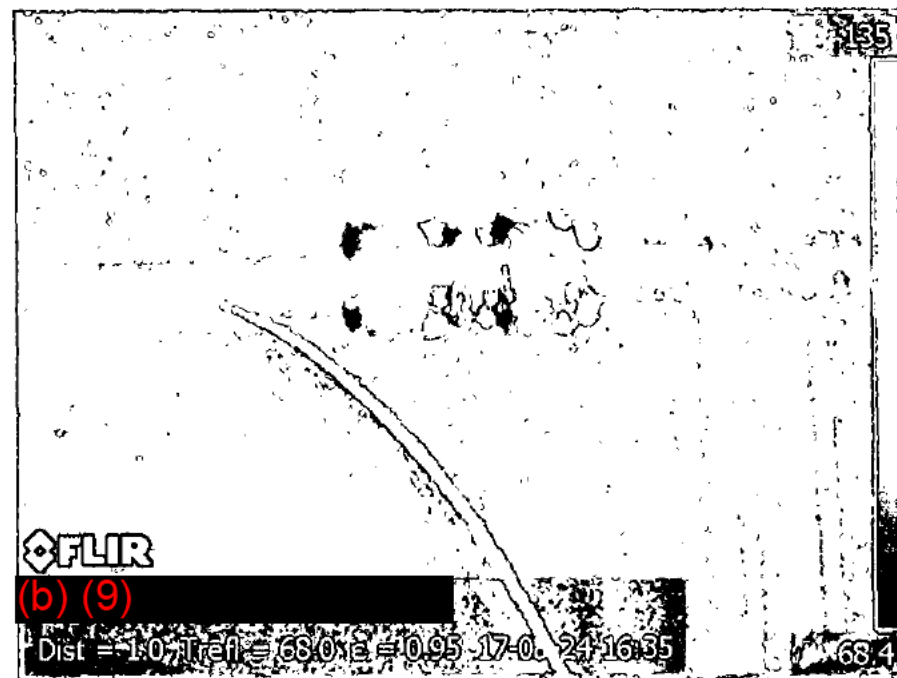


JUNK-20170824-004IR Repaired

Location: 3H GPU Run 2 Stainless Fitting

Date & Time: 8/24/2017 4:35:17 PM

Geolocation: (b) (9)



JUNK-20170824-005IR Leaking

Location: 1H GPU Run 2 High- Low Quick Exhaust

Date & Time: 8/24/2017 4:39:03 PM

Geolocation: (b) (9)



JUNK-20170824-005IR Repaired

Location: 1H GPU Run 2 High- Low Quick Exhaust

Date & Time: 8/24/2017 4:46:37 PM

Geolocation: (b) (9)



JUNK-20170824-006IR Leaking

Location: 1H GPU Run 1 Main Burner Stainless Fitting

Date & Time: 8/24/2017 4:44:04 PM

Geolocation: (b) (9)

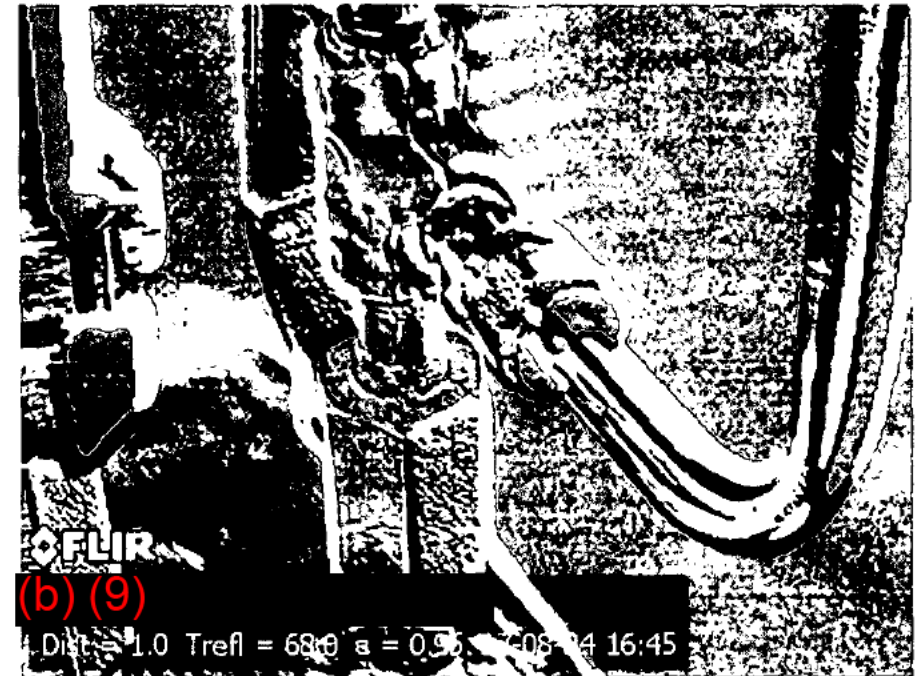


JUNK-20170824-006IR Repaired

Location: 1H GPU Run 1 Main Burner Stainless Fitting

Date & Time: 8/24/2017 4:45:05 PM

Geolocation: (b) (9)





Rice Drilling D LLC
LDAR Inspection Conducted on August 16, 2017
Madusa Well Pad
2H, 4H, 6H



1 Dane St.
Clarksburg, WV, 26301
304-624-0989
www.premierenergyservices.com



Rice Drilling D LLC

Madusa 2H, 4H, 6H Leaking Components Report

Inspection Conducted on 08/16/2017

Total Leaking Components	0
Total repairs not made within 30 days	0

Leak #	Location Description	Testing Method	Testing Equipment	Inspection Date	Final Repair Deadline	Repair Date	Corrective Action Description	OGI Retest Date	Repair confirmed with OGI?
No Leaking Components	No Leaking Components	OGI	FLIR GF 320	8/16/2017	9/15/2017	N/A	N/A	N/A	N/A

Inspection Personnel	OGI Certification Number
(b) (6)	163753

LDAR FLIR Monitoring Form



WELLPAD	Madusa Wellpad				
ON-SITE CONTACT	Brandon St. Clair				
DATE TESTED	8/16/2017	START TIME	1410	END TIME	1530
SKY CONDITIONS	Clear	AMBIENT TEMP	81	WIND SPEED	3mph

CAMERA MODEL	FLIR GF 320
CAMERA ID NUMBER	S/N: 44401600
CAMERA CERTIFICATION DATE	8 August 2016
DAILY VERIFICATION DATE	8/16/2017
MAXIMUM VIEWING DISTANCE	25 feet

MONITORING COMPANY	Premier Energy Services, LLC
MONITORING TECHNICIAN	(b) (6)
TECHNICIAN CERTIFIED? (Y/N)	YES
TECHNICIAN YEARS OF EXPERIENCE	2 Months

LEAKS DETECTED (Attach additional sheets if necessary)				
Location Description	Date Detected	Date Repaired	Camera Model and ID for Rescan	Corrective Action Description <u>For Each Attempt</u>
1				
2				
3				
4				
5				
6				

NUMBER OF COMPONENTS NOT REPAIRED DURING INITIAL SCAN (#)	0
ALL UNREPAIRED COMPONENTS HAVE BEEN TAGGED (✓)	N/A
NUMBER OF DIFFICULT-TO-MONITOR COMPONENTS SCANNED (#)	0
NUMBER OF UNSAFE-TO-MONITOR COMPONENTS SCANNED (#)	0

LDAR FLIR Monitoring Form



AT LEAST ONE STILL IMAGE IS ATTACHED (✓)	✓
ALL STILL IMAGES ARE DATED AND GIS ENABLED (✓)	✓
LEAKER STILL IMAGES ARE ATTACHED (✓ or N/A)	N/A
REPAIR STILL IMAGES ARE ATTACHED (✓ or N/A)	N/A
MONITORING PLAN AND OBSERVATION PATH WERE FOLLOWED* (✓)	✓
DELAY OF REPAIR FORMS COMPLETE (✓ or N/A)	N/A

*If either plan or path were not followed, please include a written description and explanation with this form.

ADDITIONAL OHIO CALCULATION:

$$Leak\% = \frac{t_{Leak}}{Count_{Est}} \times 100\%$$

LEAKER COUNT	0
ESTIMATED COMPONENT COUNT*	788
LEAK PERCENT**	0

*Provided by Emission Permitting Specialist or Coordinator; estimated using Subpart W population count factors.

** If Leak Percent is greater than 2.0%, increase monitoring frequency to quarterly.

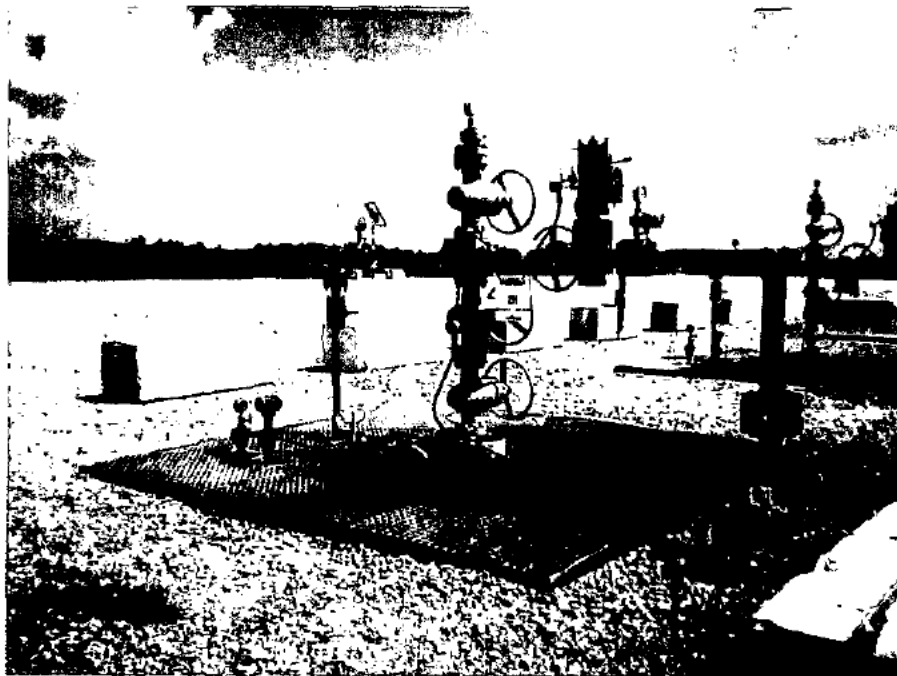
Signature **(b) (6)** Date: 16 August 2017

Initial Site Photo

Location: Well Head

Date & Time: 8/16/2017 2:24:32 PM

Geolocation: (b) (9)

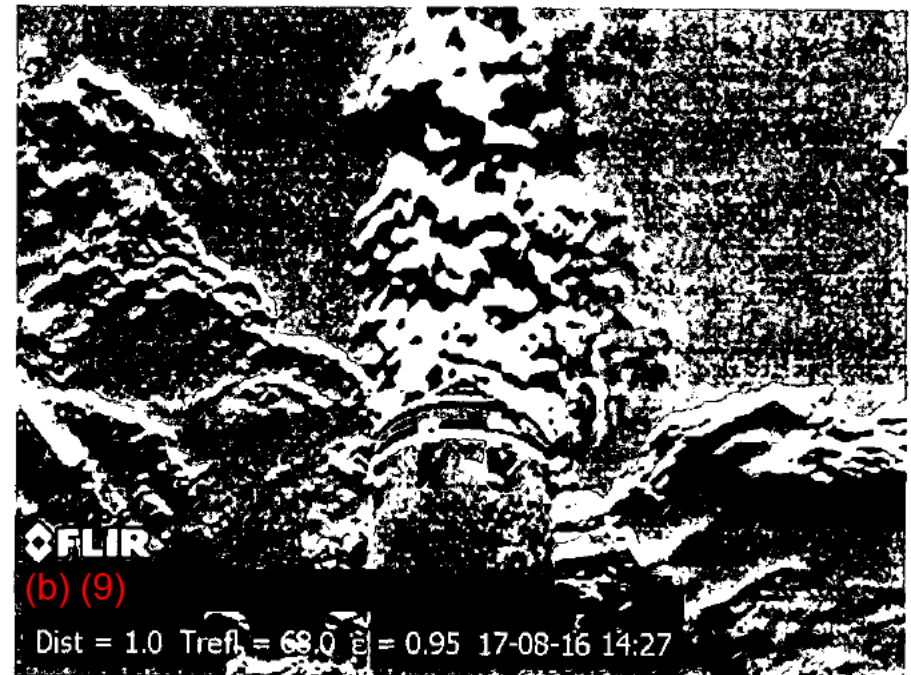


Camera Verification Photo

Location: GPU Stack

Date & Time: 8/16/2017 2:27:35 PM

Geolocation: (b) (9)





Premier Energy
Services, LLC
1 Dane St.
Clarksburg, WV 26301
304.624.0989 | Office
304.624.3106 | Fax
<http://premierenergyserviceswv.com>

Certification

I hereby certify that the FLIR GF 320 OGI Camera with Serial Number 44401600 has been operated and maintained in accordance with the manufacturer's operation and maintenance instructions.

(b) (6)

OGI Certification 163753

Date

16 August 2017



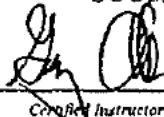
CERTIFIED

Optical Gas Imaging Thermographer

THIS IS TO CERTIFY THAT

(b) (6)

HAS SUCCESSFULLY COMPLETED
THE FOLLOWING REQUIREMENTS FOR CERTIFICATION:
ATTENDING OUR TRAINING COURSE,
PASSING THE REQUIRED EXAMS, AND
SUBMITTING A FIELD ASSIGNMENT.


Certified Instructor



2.0 CEUS

CERTIFICATION NO. 163753
EXPIRATION DATE: JUNE 15, 2022

ITC CERTIFICATION
RENEWAL 20 CREDITS

Infrared Training Center - Americas

9 TOWNSEND WEST, NASHUA, NH 03063 AN ISO 9001 REGISTERED COMPANY



PubITC 1111 2014-01-24



Job Safety Analysis

Customer: RICE ENERGY

Date: 8-16-17

Location: MEDUSA

Work Activity Description: LDAR

Truck #

Members of Work Team: (b) (6)

Signature: [Signature]

Work Sequences	Hazards or Potential Accidents	Recommendations to Eliminate/Reduce Hazard
Travel To/From Location	Driving Incidents, Inclement Weather, Wildlife Encounters	SAFE DRIVING / SEATBELTS
Work Site Assessment	Vehicle Traffic (Trucks)/ Spill Possibilities from Operational Equipment	BE AWARE OF SURROUNDINGS
Establish Muster Point, Designated Smoking Areas	Muster Established and Known (below)	MAIN GATE
Provide Work Steps Below and Perform Tailgate Meeting Topic: <u>VEHICLE SAFETY</u>	Slips, Trips, and Falls caused by uneven terrain, or mud and icy areas, lines, debris, steps or containment	3 POINTS OF CONTACT
<ol style="list-style-type: none">1. DRIVE TO THE LOCATION2. WALK AROUND LOCATION AND IDENTIFY POTENTIAL RISKS3. PERFORM HOT WORK ASSESSMENT WITH 4-GAS METER AND DOCUMENT4. POWER ON INSPECTION EQUIPMENT5. WALK INSPECTION ROUTE AND COMMENCE INSPECTION.6. RECORD ALL FINDINGS AND DOUBLE CHECK INFORMATION	Burns from compressor components and heaters	GLOVES / FR'S / PPE
	Excessive noise levels from compressors	HEARING PROTECTION
	Exposure to pinch points to hands or body by valves or structures (production equipment, heavy equipment and vehicles)	GLOVES / FR'S / PPE
	Potential for explosion from Leaking components	HOT WORK PERMIT
	Gas asphyxiation	4-GAS METER
Perform General Housekeeping/Cleanup Barricading	At all times	
Ensure All Gates are Closed and Locked	If encountered	

REMEMBER: STOP WORK AUTHORITY

Muster Points:	Additional PPE Required	Other
Primary: <u>MAIN GATE</u>	Hard Hat Ear protection	WEATHER CONDITIONS: <u>Partly Sunny</u>
	Safety Glasses 4-Gas Meter	TEMPERATURE: <u>81° F</u>
GPS Coordinates:	Fire Resistant Clothing	
	Steel Toe Boots	Company Representative:
	High Vis Vest	<u>[Signature]</u>

[Signature]



Rice Drilling D LLC
LDAR Inspection Conducted on August 24, 2017
Monster Mut Well Pad
1H, 3H, 5H



1 Dane St.
Clarksburg, WV, 26301
304-624-0989
www.premierenergyservices.com



Rice Drilling D LLC

Monster Mut 1H, 3H, 5H Leaking Components Report

Inspection Conducted on 08/24/2017

Total Leaking Components	8
Total repairs not made within 30 days	0

Leak #	Location Description	Testing Method	Testing Equipment	Inspection Date	Final Repair Deadline	Repair Date	Corrective Action Description	OGI Retest Date	Repair confirmed with OGI?
MONS-20170824-001	Dehy Level Controller Stainless Fitting	OGI	FLIR GF 320	8/24/2017	9/23/2017	8/24/2017	1st Tightened	8/24/2017	YES
MONS-20170824-002	5H GPU Run 1 Burner Stainless Fitting	OGI	FLIR GF 320	8/24/2017	9/23/2017	8/24/2017	1st Tightened	8/24/2017	YES
MONS-20170824-003	5H GPU Run 2 Stainless Fitting	OGI	FLIR GF 320	8/24/2017	9/23/2017	8/24/2017	1st Tightened	8/24/2017	YES
MONS-20170824-004	5H GPU Run 2 Stainless Fitting	OGI	FLIR GF 320	8/24/2017	9/23/2017	8/24/2017	1st Tightened	8/24/2017	YES
MONS-20170824-005	1H GPU Run ESD Diaphragm	OGI	FLIR GF 320	8/24/2017	9/23/2017	9/1/2017	1st Replaced	9/1/2017	YES
MONS-20170824-006	1H GPU Run 1 High- Low Supply Line	OGI	FLIR GF 320	8/24/2017	9/23/2017	8/24/2017	1st Tightened	8/24/2017	YES
MONS-20170824-007	1H GPU Run 1 High- Low Switch GFI	OGI	FLIR GF 320	8/24/2017	9/23/2017	8/24/2017	1st Tightened	8/24/2017	YES
MONS-20170824-008	1H GPU High- Low Box Stainless Fitting	OGI	FLIR GF 320	8/24/2017	9/23/2017	8/24/2017	1st Tightened	8/24/2017	YES

Inspection Personnel	OGI Certification Number
(b) (6)	163753

LDAR FLIR Monitoring Form



WELLPAD	Monster Mut Wellpad				
ON-SITE CONTACT	Justin Stogner				
DATE TESTED	8/24/2017	START TIME	1330	END TIME	1530
SKY CONDITIONS	Clear	AMBIENT TEMP	77	WIND SPEED	3

CAMERA MODEL	FLIR GF 320
CAMERA ID NUMBER	S/N: 44401600
CAMERA CERTIFICATION DATE	8 August 2016
DAILY VERIFICATION DATE	8/24/2017
MAXIMUM VIEWING DISTANCE	25 feet

MONITORING COMPANY	Premier Energy Services, LLC
MONITORING TECHNICIAN	(b) (6)
TECHNICIAN CERTIFIED? (Y/N)	YES
TECHNICIAN YEARS OF EXPERIENCE	2 Months

LEAKS DETECTED (Attach additional sheets if necessary)

Location Description	Date Detected	Date Repaired	Camera Model and ID for Rescan	Corrective Action Description <i>For Each Attempt</i>
1 Dehy Level Controller Stainless Fitting	8/24/2017	8/24/2017	FLIR GF 320 S/N: 44401600	1 st Tightened
2 5H GPU Run 1 Burner Stainless Fitting	8/24/2017	8/24/2017	FLIR GF 320 S/N: 44401600	1 st Tightened
3 5H GPU Run 2 Stainless Fitting	8/24/2017	8/24/2017	FLIR GF 320 S/N: 44401600	1 st Tightened
4 5H GPU Run 2 Stainless Fitting	8/24/2017	8/24/2017	FLIR GF 320 S/N: 44401600	1 st Tightened
5 1H GPU Run ESD Diaphragm	8/24/2017	9/1/2017	FLIR GF 320 S/N: 44401600	1 st Replaced
6 1H GPU Run 1 High-Low Supply Line	8/24/2017	8/24/2017	FLIR GF 320 S/N: 44401600	1 st Tightened

NUMBER OF COMPONENTS NOT REPAIRED DURING INITIAL SCAN (#)	1
ALL UNREPAIRED COMPONENTS HAVE BEEN TAGGED (✓)	✓
NUMBER OF DIFFICULT-TO-MONITOR COMPONENTS SCANNED (#)	0
NUMBER OF UNSAFE-TO-MONITOR COMPONENTS SCANNED (#)	0

LDAR FLIR Monitoring Form



AT LEAST ONE STILL IMAGE IS ATTACHED (✓)	✓
ALL STILL IMAGES ARE DATED AND GIS ENABLED (✓)	✓
LEAKER STILL IMAGES ARE ATTACHED (✓ or N/A)	✓
REPAIR STILL IMAGES ARE ATTACHED (✓ or N/A)	✓
MONITORING PLAN AND OBSERVATION PATH WERE FOLLOWED* (✓)	✓
DELAY OF REPAIR FORMS COMPLETE (✓ or N/A)	N/A

*If either plan or path were not followed, please include a written description and explanation with this form.

ADDITIONAL OHIO CALCULATION:

$$Leak\% = \frac{u_k}{Count_{Est}} \times 100\%$$

LEAKER COUNT	8
ESTIMATED COMPONENT COUNT*	849
LEAK PERCENT**	.94

* Provided by Emission Permitting Specialist or Coordinator; estimated using Subpart W population count factors

** If Leak Percent is greater than 2.0%, increase monitoring frequency to quarterly.

Signature: **(b) (6)** Date: 1 September 2017

LDAR FLIR Monitoring Form



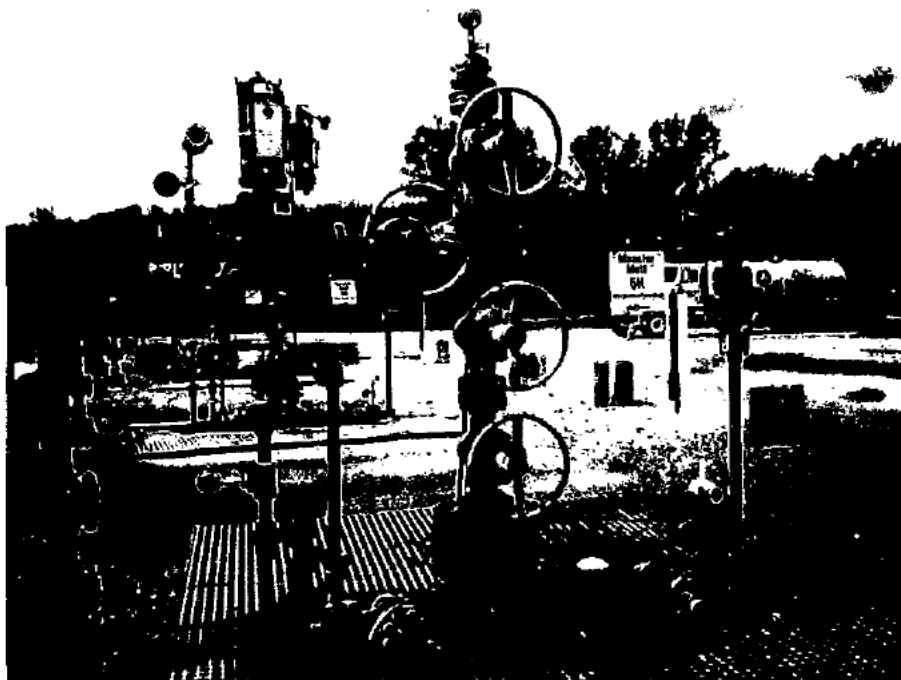
LEAKS DETECTED (Attach additional sheets if necessary)				
Location Description	Date Detected	Date Repaired	Camera Model and ID for Rescan	Corrective Action Description <i>For Each Attempt</i>
7 IH GPU Run 1 High-Low Switch GFI	8/24/2017	8/24/2017	FLIR GF 320 S/N: 44401600	1 st Tightened
8 IH GPU High- Low Box Stainless Fitting	8/24/2017	8/24/2017	FLIR GF 320 S/N: 44401600	1 st Tightened

Initial Site Photo

Location: Well Head

Date & Time: 8/24/2017 1:47:18 PM

Geolocation: (b) (9)

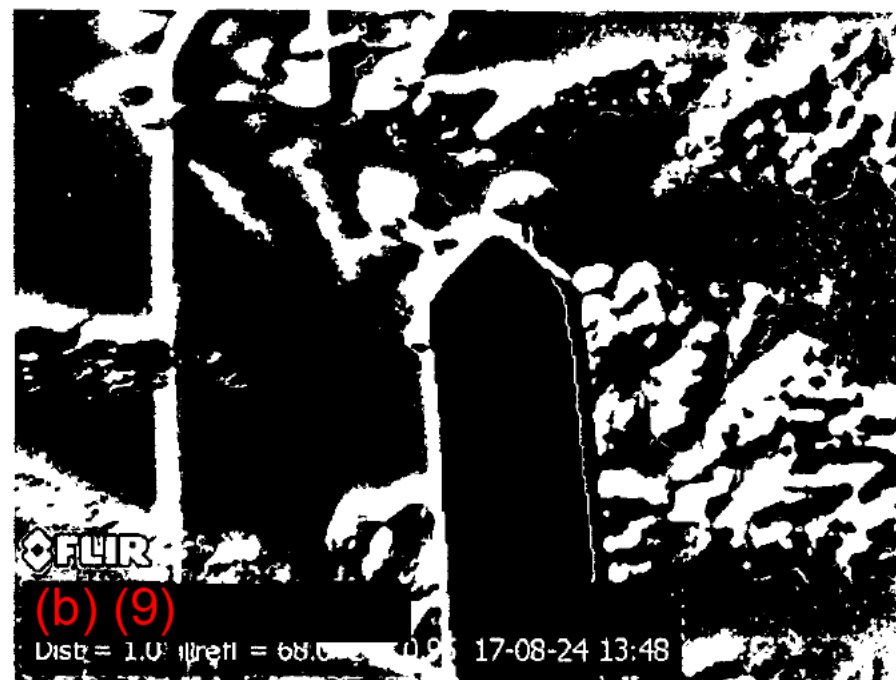


Camera Verification Photo

Location: GPU Stack

Date & Time: 8/24/2017 1:48:18 PM

Geolocation: (b) (9)

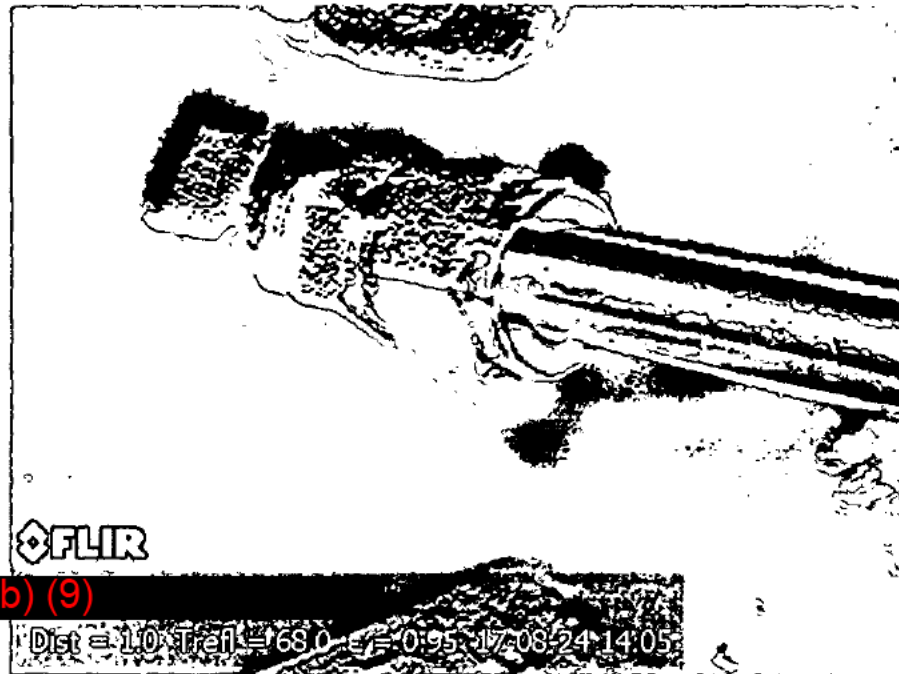


MONS-20170824-001IR Leaking

Location: Dehy Level Controller Stainless Fitting

Date & Time: 8/24/2017 2:06:01 PM

Geolocation: N (b) (9)

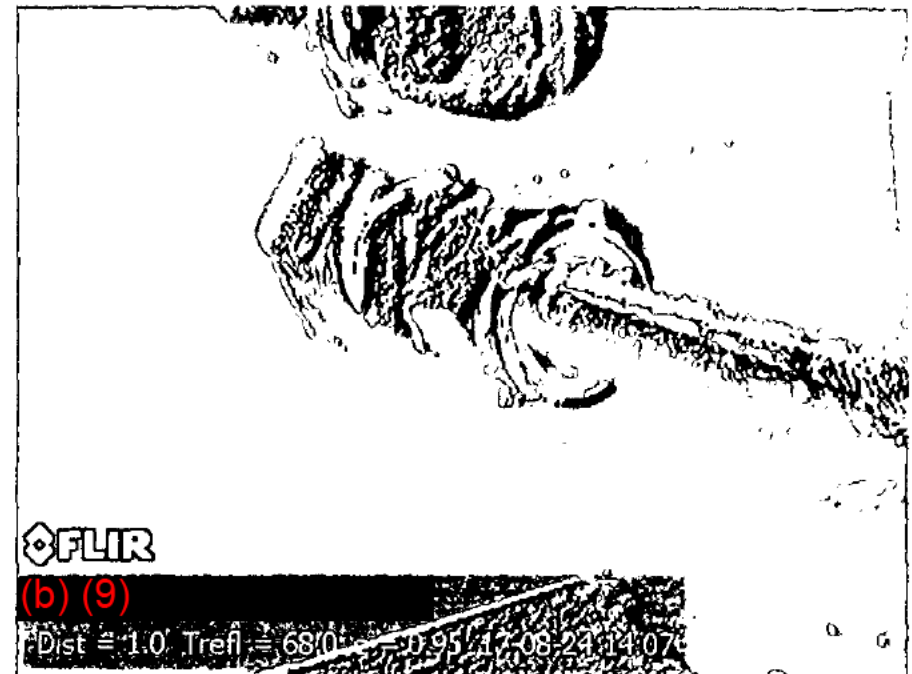


MONS-20170824-001IR Repaired

Location: Dehy Level Controller Stainless Fitting

Date & Time: 8/24/2017 2:07:26 PM

Geolocation: (b) (9)

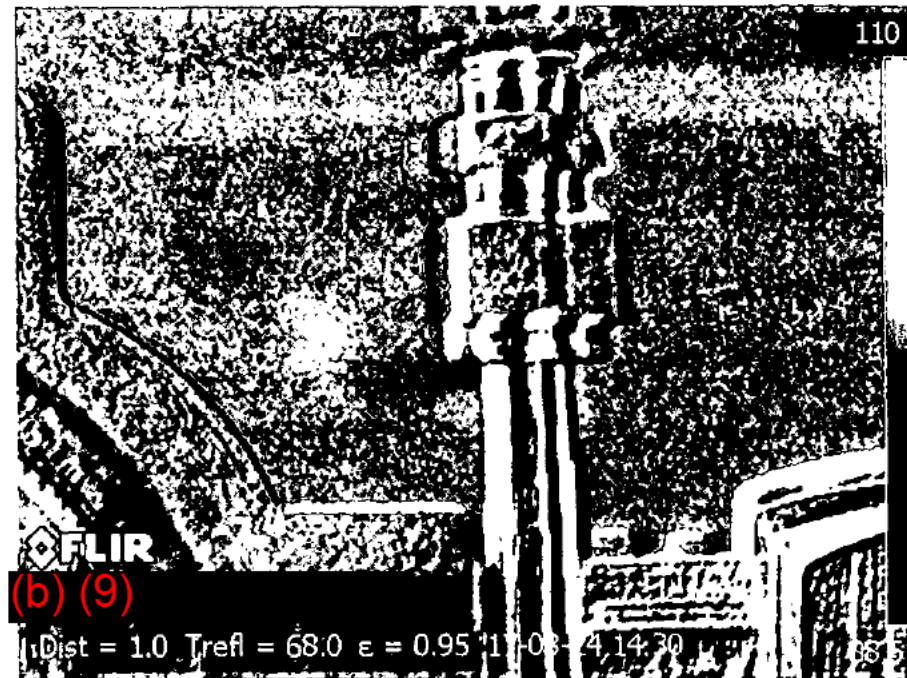


MONS-20170824-002IR Leaking

Location: 5H GPU Run 1 Burner Stainless Fitting

Date & Time: 8/24/2017 2:30:42 PM

Geolocation: (b) (9)



MONS-20170824-002IR Repaired

Location: 5H GPU Run 1 Burner Stainless Fitting

Date & Time: 8/24/2017 2:47:26 PM

Geolocation: (b) (9)

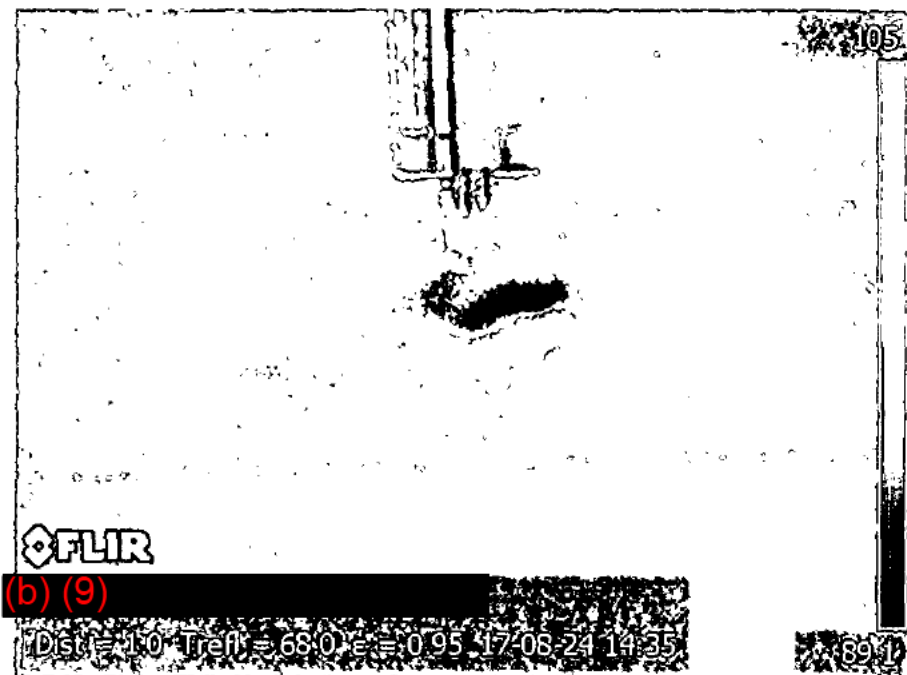


MONS-20170824-003IR Leaking

Location: 5H GPU Run 2 Stainless Fitting

Date & Time: 8/24/2017 2:35:50 PM

Geolocation: (b) (9)

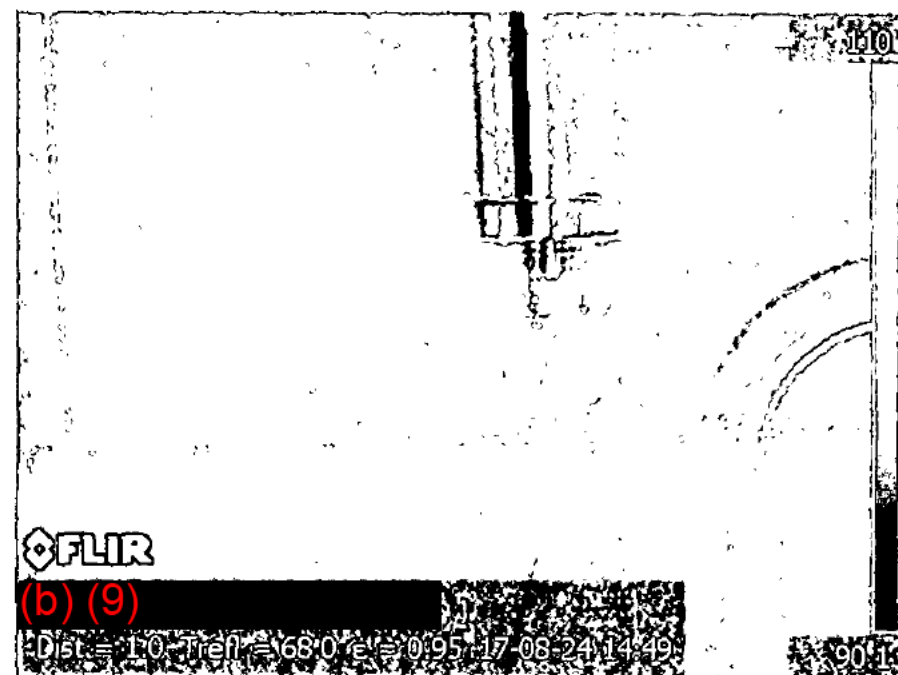


MONS-20170824-003IR Repaired

Location: 5H GPU Run 2 Stainless Fitting

Date & Time: 8/24/2017 2:49:19 PM

Geolocation: (b) (9)



MONS-20170824-004IR Leaking

Location: 5H GPU Run 2 Stainless Fitting

Date & Time: 8/24/2017 2:37:01 PM

Geolocation: (b) (9)

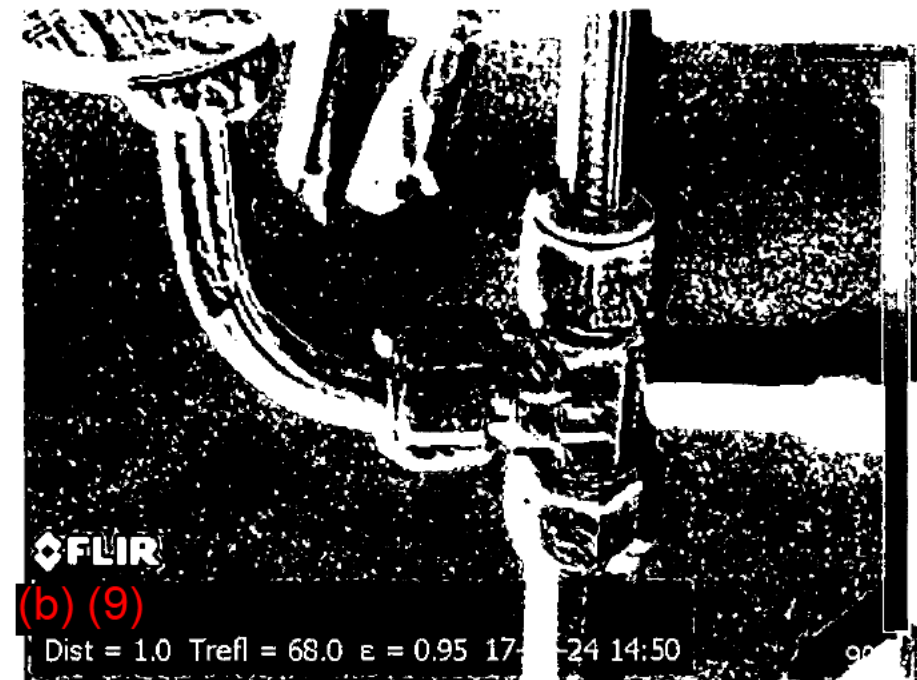


MONS-20170824-004IR Repaired

Location: 5H GPU Run 2 Stainless Fitting

Date & Time: 8/24/2017 2:50:39 PM

Geolocation: (b) (9)

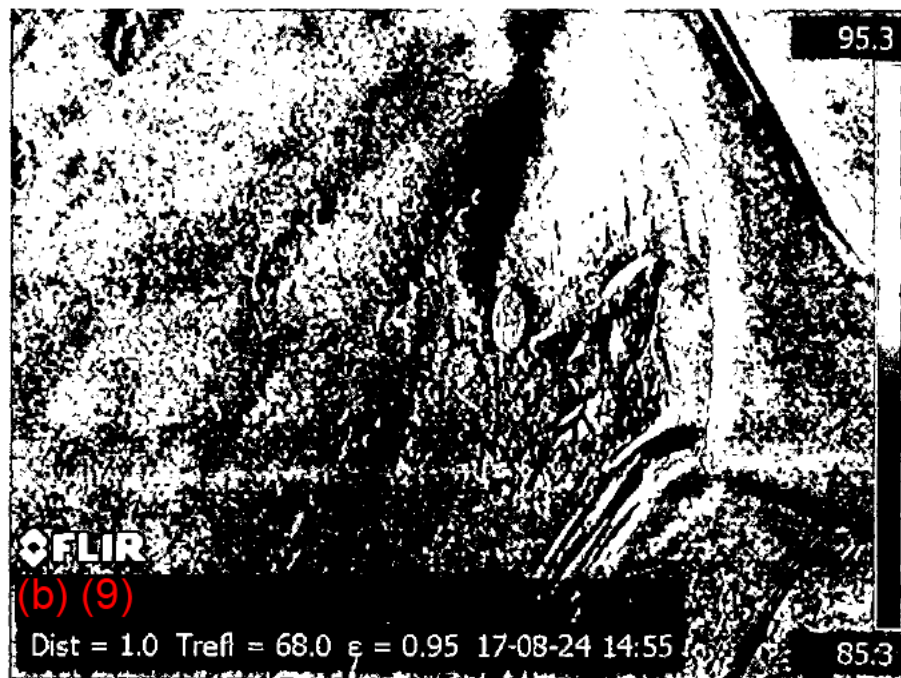


MONS-20170824-005IR Leaking

Location: 1H GPU Run ESD Diaphragm

Date & Time: 8/24/2017 2:55:42 PM

Geolocation: (b) (9)



MONS-20170824-005IR Repaired

Location: 1H GPU Run ESD Diaphragm

Date & Time: 9/1/2017 1:56:05 PM

Geolocation: (b) (9)

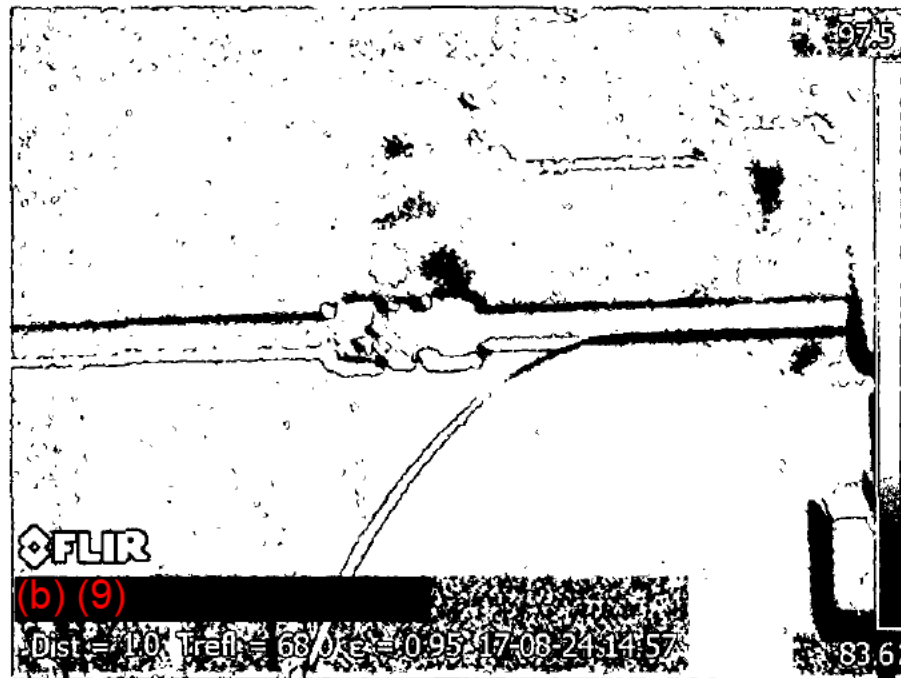


MONS-20170824-006IR Leaking

Location: 1H GPU Run 1 High- Low Supply Line

Date & Time: 8/24/2017 2:57:06 PM

Geolocation: (b) (9)

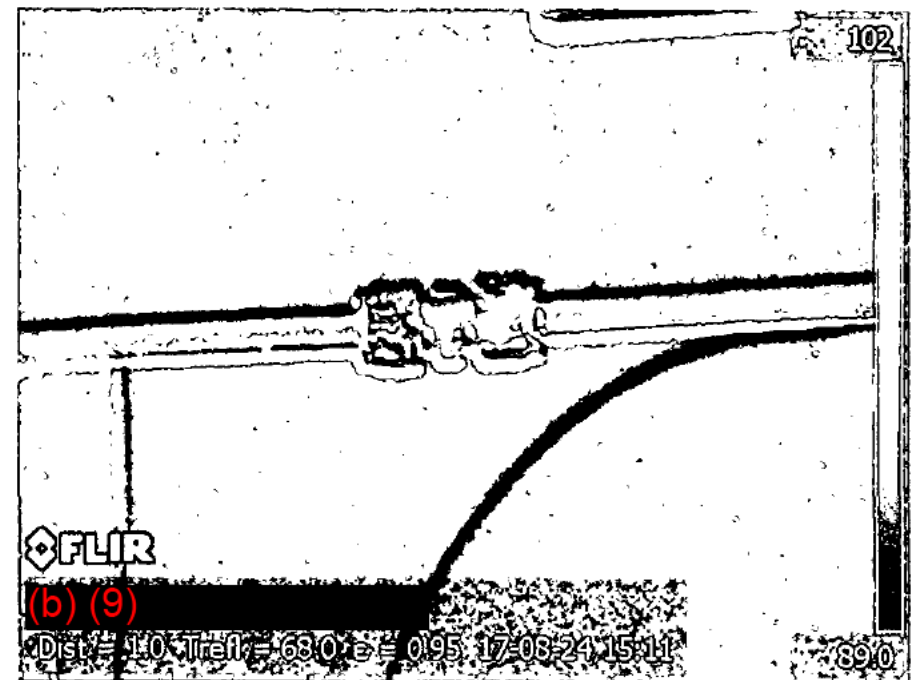


MONS-20170824-006IR Repaired

Location: 1H GPU Run 1 High- Low Supply Line

Date & Time: 8/24/2017 3:11:36 PM

Geolocation: (b) (9)

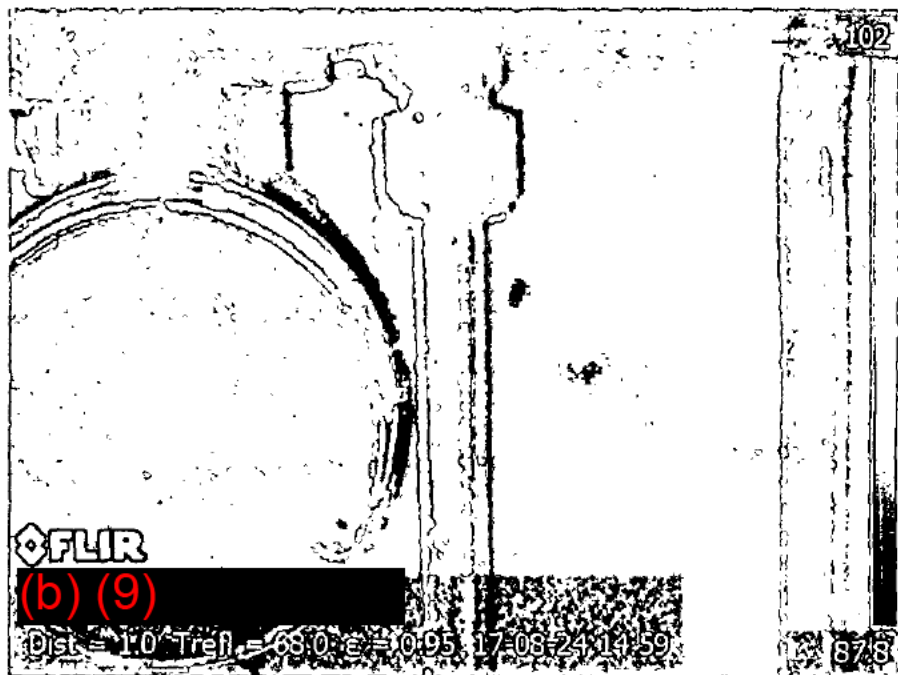


MONS-20170824-007IR Leaking

Location: 1H GPU Run 1 High- Low Switch GFI

Date & Time: 8/24/2017 2:59:43 PM

Geolocation: (b) (9)

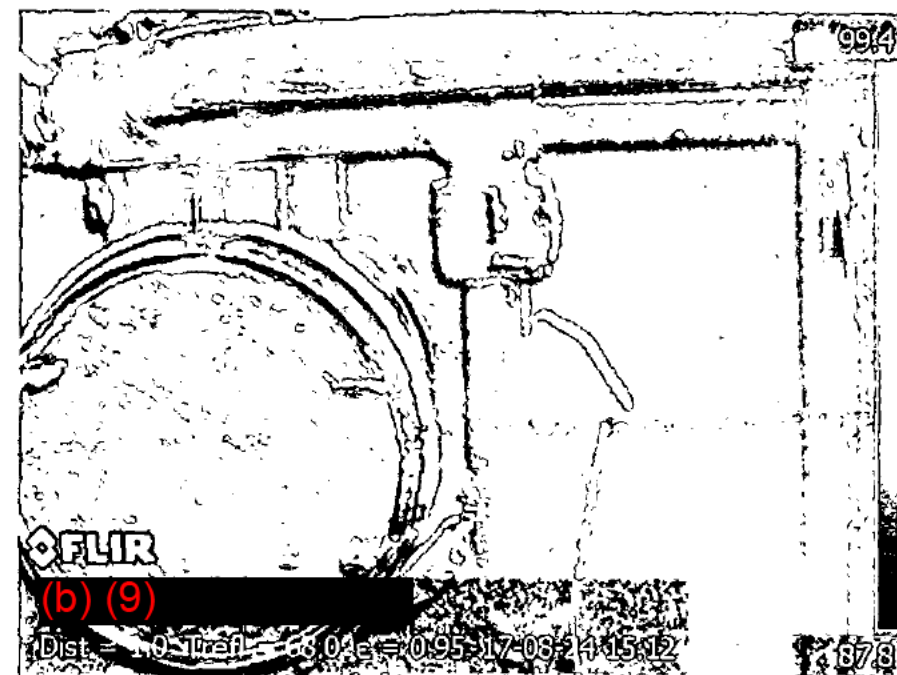


MONS-20170824-007IR Repaired

Location: 1H GPU Run 1 High- Low Switch GFI

Date & Time: 8/24/2017 3:12:31 PM

Geolocation: (b) (9)

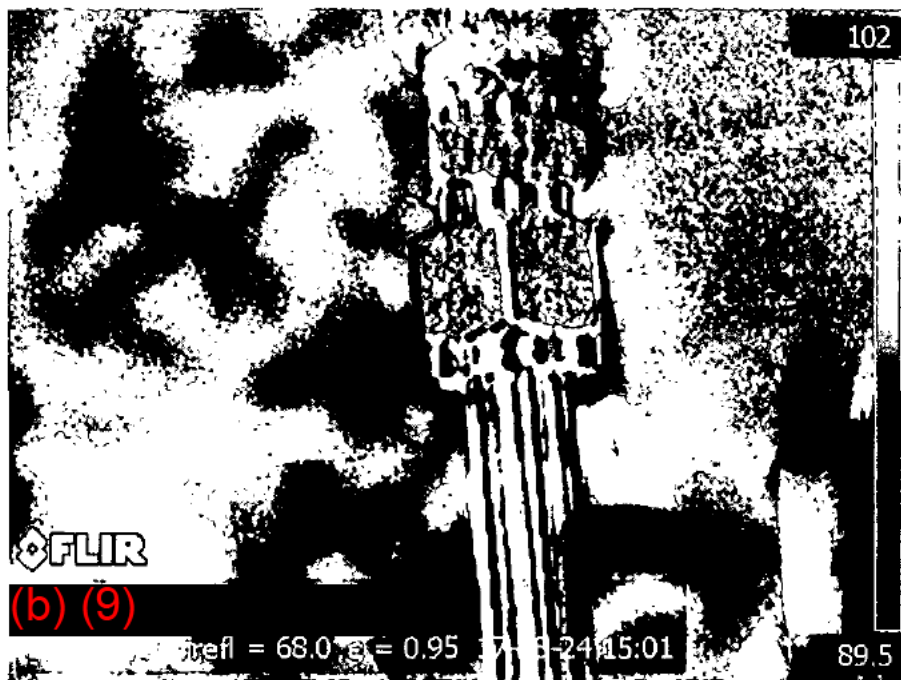


MONS-20170824-008IR Leaking

Location: 1H GPU High- Low Box Stainless Fitting

Date & Time: 8/24/2017 3:01:46 PM

Geolocation: (b) (9)



MONS-20170824-008IR Repaired

Location: 1H GPU High- Low Box Stainless Fitting

Date & Time: 8/24/2017 3:13:48 PM

Geolocation: (b) (9)





Rice Drilling D, LLC
LDAR Inspection Conducted on August 24, 2017
Spitfire Well Pad
1H, 3H



1 Dane St.
Clarksburg, WV, 26301
304-624-0989
www.premierenergyservices.com



Rice Drilling D LLC

Spitfire 1H, 3H Leaking Components Report

Inspection Conducted on 08/24/2017

Total Leaking Components	4
Total repairs not made within 30 days	0

Leak #	Location Description	Testing Method	Testing Equipment	Inspection Date	Final Repair Deadline	Repair Date	Corrective Action Description	OGI Retest Date	Repair confirmed with OGI?
SPIT-20170824-001	Dehy Liquid level Controller	OGI	FLIR GF 320	8/24/2017	9/23/2017	8/24/2017	1st Cleaned	8/24/2017	YES
SPIT-20170824-002	3H GPU Run 1 High- Low Quick Exhaust	OGI	FLIR GF 320	8/24/2017	9/23/2017	8/24/2017	1st Tighted	8/24/2017	YES
SPIT-20170824-003	1H GPU Run 1 High- Low Quick Exhaust	OGI	FLIR GF 320	8/24/2017	9/23/2017	8/24/2017	1st Tighted	8/24/2017	YES
SPIT-20170824-004	1H GPU Run 2 Piper Valve Grease Fitting	OGI	FLIR GF 320	8/24/2017	9/23/2017	8/24/2017	1st Tighted	8/24/2017	YES

Inspection Personnel	OGI Certification Number
(b) (6)	163753

LDAR FLIR Monitoring Form



WELLPAD	Spitfire wellpad				
ON-SITE CONTACT	Justin Stoner				
DATE TESTED	8/24/2017	START TIME	1030	END TIME	1305
SKY CONDITIONS	Clear	AMBIENT TEMP	77	WIND SPEED	3

CAMERA MODEL	FLIR GF 320
CAMERA ID NUMBER	S/N: 44401600
CAMERA CERTIFICATION DATE	8 August 2016
DAILY VERIFICATION DATE	8/24/2017
MAXIMUM VIEWING DISTANCE	25 feet

MONITORING COMPANY	Premier Energy Services, LLC
MONITORING TECHNICIAN	(b) (6)
TECHNICIAN CERTIFIED? (Y/N)	YES
TECHNICIAN YEARS OF EXPERIENCE	2 Months

LEAKS DETECTED (Attach additional sheets if necessary)

Location Description	Date Detected	Date Repaired	Camera Model and ID for Rescan	Corrective Action Description <i>For Each Attempt</i>
1 Dehy Liquid level Controller	8/24/2017	8/24/2017	FLIR GF 320 S/N: 44401600	1 st Cleaned
2 3H GPU Run 1 High-Low Quick Exhaust	8/24/2017	8/24/2017	FLIR GF 320 S/N: 44401600	1 st Tightened
3 1H GPU Run 1 High-Low Quick Exhaust	8/24/2017	8/24/2017	FLIR GF 320 S/N: 44401600	1 st Tightened
4 1H GPU Run 2 Piper Valve Grease Fitting	8/24/2017	8/24/2017	FLIR GF 320 S/N: 44401600	1 st Tightened
5				
6				

NUMBER OF COMPONENTS NOT REPAIRED DURING INITIAL SCAN (#)	0
ALL UNREPAIRED COMPONENTS HAVE BEEN TAGGED (✓)	✓
NUMBER OF DIFFICULT-TO-MONITOR COMPONENTS SCANNED (#)	0
NUMBER OF UNSAFE-TO-MONITOR COMPONENTS SCANNED (#)	0

LDAR FLIR Monitoring Form



AT LEAST ONE STILL IMAGE IS ATTACHED (✓)	✓
ALL STILL IMAGES ARE DATED AND GIS ENABLED (✓)	✓
LEAKER STILL IMAGES ARE ATTACHED (✓ or N/A)	✓
REPAIR STILL IMAGES ARE ATTACHED (✓ or N/A)	✓
MONITORING PLAN AND OBSERVATION PATH WERE FOLLOWED* (✓)	✓
DELAY OF REPAIR FORMS COMPLETE (✓ or N/A)	N/A

*if either plan or path were not followed, please include a written description and explanation with this form.

ADDITIONAL OHIO CALCULATION:

$$Leak\% = \frac{t_{Leak}}{Count_{Est}} \times 100\%$$

LEAKER COUNT	4
ESTIMATED COMPONENT COUNT*	624
LEAK PERCENT**	.64

*Provided by Emission Permitting Specialist or Coordinator; estimated using Subpart W population count factors.

** If Leak Percent is greater than 2.0%, increase monitoring frequency to quarterly.

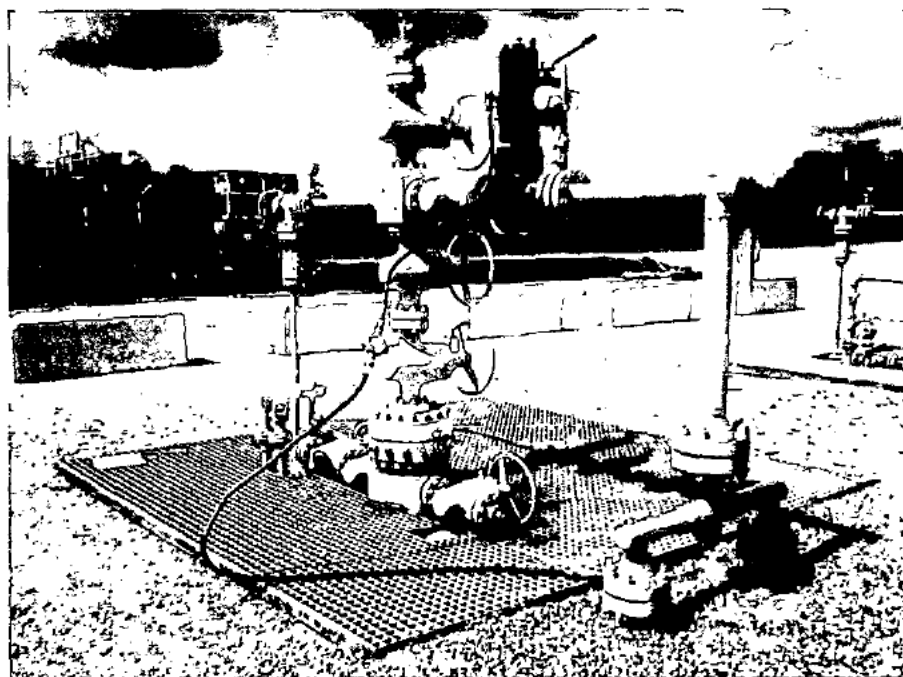
Signature: (b) (6) Date: 24 August 2017

Initial Site Photo

Location: Well Head

Date & Time: 8/24/2017 11:50:15 AM

Geolocation: (b) (9)

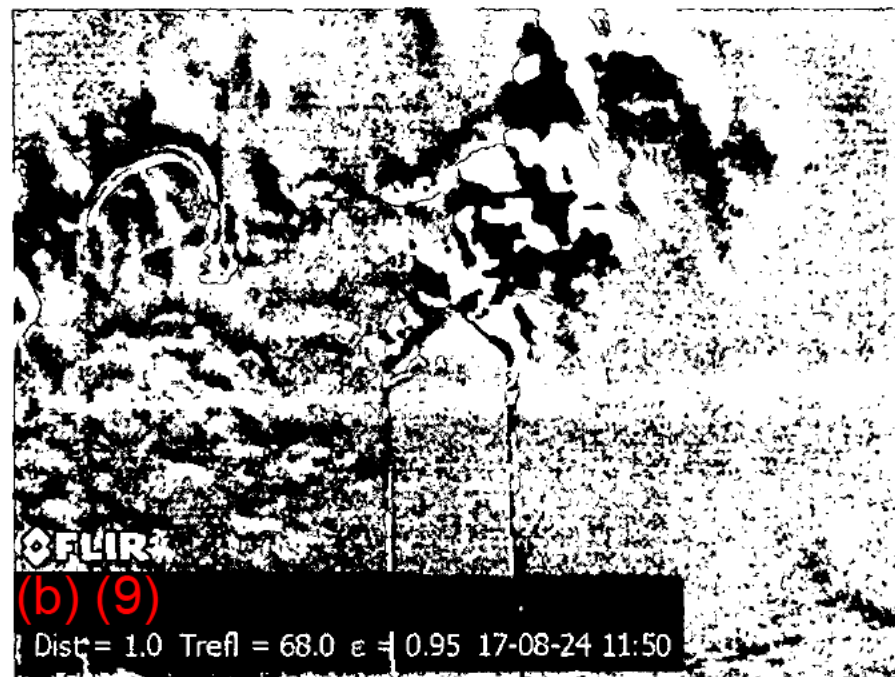


Camera Verification Photo

Location: GPU Stack

Date & Time: 8/24/2017 11:51:05 AM

Geolocation: (b) (9)



SPIT-20170824-001IR Leaking

Location: Dehy Liquid level Controller

Date & Time: 8/24/2017 12:16:29 PM

Geolocation: (b) (9)

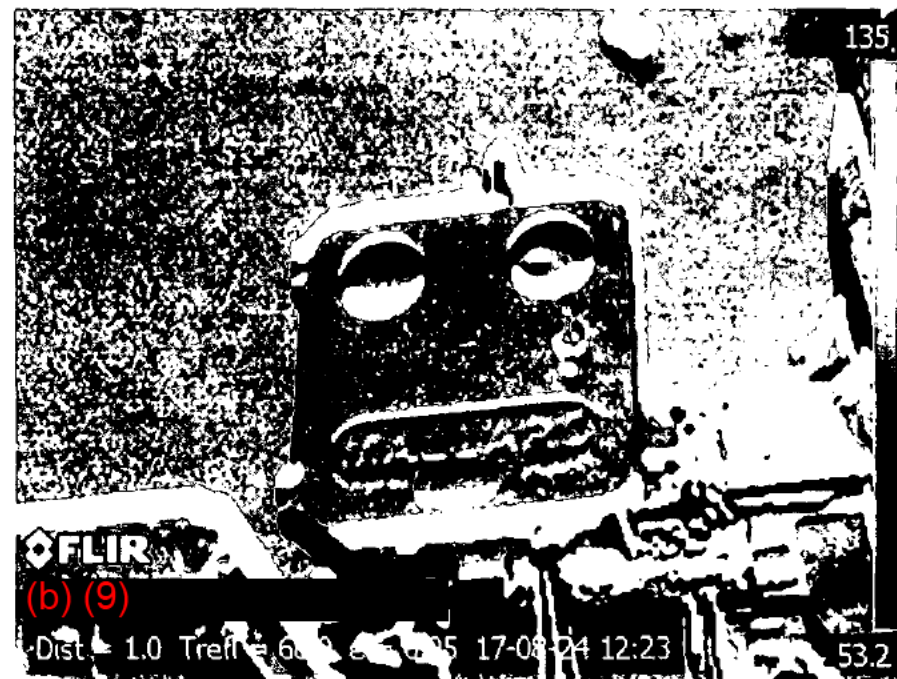


SPIT-20170824-001IR Repaired

Location: Dehy Liquid level Controller

Date & Time: 8/24/2017 12:23:14 PM

Geolocation: (b) (9)



SPIT-20170824-002IR Leaking

Location: 3H GPU Run 1 High- Low Quick Exhaust

Date & Time: 8/24/2017 12:30:13 PM

Geolocation: (b) (9)

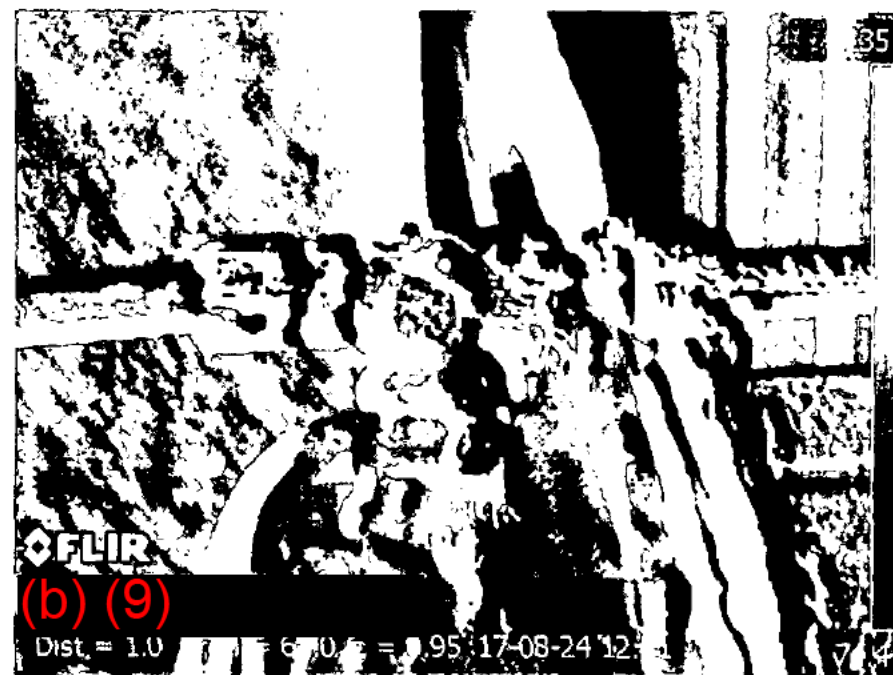


SPIT-20170824-002IR Repaired

Location: 3H GPU Run 1 High- Low Quick Exhaust

Date & Time: 8/24/2017 12:31:21 PM

Geolocation: (b) (9)



SPIT-20170824-003IR Leaking

Location: 1H GPU Run 1 High- Low Quick Exhaust

Date & Time: 8/24/2017 12:43:36 PM

Geolocation: (b) (9)



SPIT-20170824-003IR Repaired

Location: 1H GPU Run 1 High- Low Quick Exhaust

Date & Time: 8/24/2017 12:44:27 PM

Geolocation: N (b) (9)

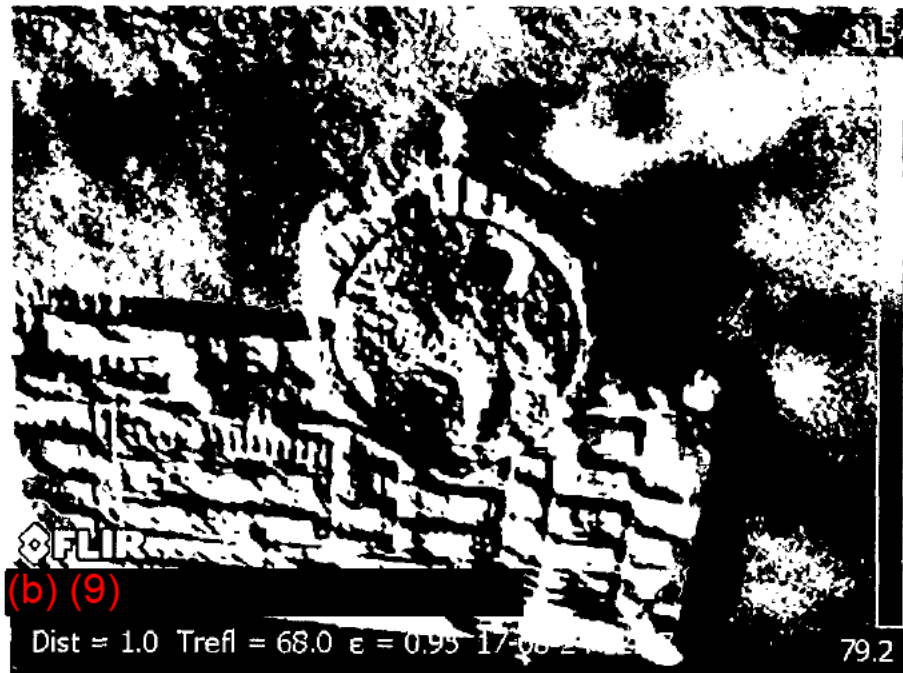


SPIT-20170824-004IR Leaking

Location: 1H GPU Run 2 Piper Valve Grease Fitting

Date & Time: 8/24/2017 12:47:38 PM

Geolocation: (b) (9)

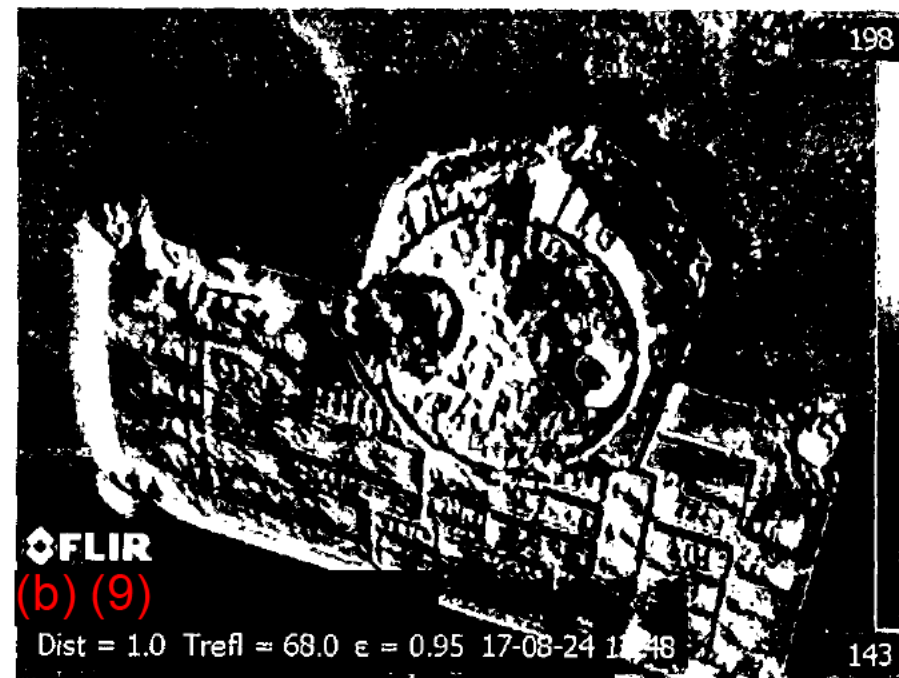


SPIT-20170824-004IR Repaired

Location: 1H GPU Run 2 Piper Valve Grease Fitting

Date & Time: 8/24/2017 12:48:51 PM

Geolocation: (b) (9)





Rice Drilling D LLC
LDAR Inspection Conducted on August 16, 2017
Taco Cat Well Pad
1H, 3H, 5H



1 Dane St.
Clarksburg, WV, 26301
304-624-0989
www.premierenergyservices.com



Rice Drilling D LLC

Taco Cat 1H, 3H, 5H Leaking Components Report

Inspection Conducted on 08/16/2017

Total Leaking Components	11
Total repairs not made within 30 days	0

Leak #	Location Description	Testing Method	Testing Equipment	Inspection Date	Final Repair Deadline	Repair Date	Corrective Action Description	OGI Retest Date	Repair confirmed with OGI?
TACO-20170816-001	Fuel Skid Dump Control for Concentrate Separator	OGI	FLIR GF 320	8/16/2017	9/15/2017	8/16/2017	1st Retaped	8/16/2017	YES
TACO-20170816-002	1H GPU Run 2 Piper Valve Grease Fitting	OGI	FLIR GF 320	8/16/2017	9/15/2017	8/16/2017	1st Greased	8/16/2017	YES
TACO-20170816-003	1H GPU Run 1 Main Burner Stainless Fitting	OGI	FLIR GF 320	8/16/2017	9/15/2017	8/16/2017	1st Tightened	8/16/2017	YES
TACO-20170816-004	3H GPU Run 2 Fuel Gas Stainless Fitting	OGI	FLIR GF 320	8/16/2017	9/15/2017	8/16/2017	1st Tightened	8/16/2017	YES
TACO-20170816-005	3H GPU Run 2 Fuel Gas Stainless Fitting	OGI	FLIR GF 320	8/16/2017	9/15/2017	8/16/2017	1st Tightened	8/16/2017	YES
TACO-20170816-006	3H GPU Run 1 Fuel Gas Stainless Fitting	OGI	FLIR GF 320	8/16/2017	9/15/2017	8/16/2017	1st Tightened	8/16/2017	YES
TACO-20170816-007	3H GPU Run 1 Fuel Gas Stainless Fitting	OGI	FLIR GF 320	8/16/2017	9/15/2017	8/16/2017	1st Tightened	8/16/2017	YES
TACO-20170816-008	5H GPU Run 2 High Low Quick Exhaust	OGI	FLIR GF 320	8/16/2017	9/15/2017	8/16/2017	1st Greased	8/17/2017	YES
TACO-20170816-009	5H GPU Run 2 Fuel Gas Stainless Fitting	OGI	FLIR GF 320	8/16/2017	9/15/2017	8/16/2017	1st Tightened	8/16/2017	YES
TACO-20170816-010	5H GPU Run 2 Fuel Gas Stainless Fitting	OGI	FLIR GF 320	8/16/2017	9/15/2017	8/16/2017	1st Tightened	8/16/2017	YES
TACO-20170816-011	5H GPU Run 1 High Low Quick Exhaust	OGI	FLIR GF 320	8/16/2017	9/15/2017	8/16/2017	1st Tightened 2nd Replaced	8/16/2017	YES

Inspection Personnel	OGI Certification Number
(b) (6)	163753

LDAR FLIR Monitoring Form



WELLPAD	Taco Cat Wellpad				
ON-SITE CONTACT	Brandon St. Clair				
DATE TESTED	8/16/2017	START TIME	0815	END TIME	1215
SKY CONDITIONS	Clear	AMBIENT TEMP	81	WIND SPEED	3mph

CAMERA MODEL	FLIR GF 320
CAMERA ID NUMBER	S/N: 44401600
CAMERA CERTIFICATION DATE	8 August 2016
DAILY VERIFICATION DATE	8/16/2017
MAXIMUM VIEWING DISTANCE	25 feet

MONITORING COMPANY	Premier Energy Services, LLC
MONITORING TECHNICIAN	(b) (6)
TECHNICIAN CERTIFIED? (Y/N)	YES
TECHNICIAN YEARS OF EXPERIENCE	2 Months

LEAKS DETECTED (Attach additional sheets if necessary)					
Location Description		Date Detected	Date Repaired	Camera Model and ID for Rescan	Corrective Action Description <i>For Each Attempt</i>
1	Fuel Skid Dump Control for Concentrate Separator	8/16/2017	8/16/2017	FLIR GF 320 S/N: 44401600	1 st Retaped
2	1H GPU Run 2 Piper Valve Grease Fitting	8/16/2017	8/16/2017	FLIR GF 320 S/N: 44401600	1 st Greased
3	1H GPU Run 1 Main Burner Stainless Fitting	8/16/2017	8/16/2017	FLIR GF 320 S/N: 44401600	1 st Tightened
4	3H GPU Run 2 Fuel Gas Stainless Fitting	8/16/2017	8/16/2017	FLIR GF 320 S/N: 44401600	1 st Tightened
5	3H GPU Run 2 Fuel Gas Stainless Fitting	8/16/2017	8/16/2017	FLIR GF 320 S/N: 44401600	1 st Tightened
6	3H GPU Run 1 Fuel Gas Stainless Fitting	8/16/2017	8/16/2017	FLIR GF 320 S/N: 44401600	1 st Tightened

NUMBER OF COMPONENTS NOT REPAIRED DURING INITIAL SCAN (#)	1
ALL UNREPAIRED COMPONENTS HAVE BEEN TAGGED (✓)	✓
NUMBER OF DIFFICULT-TO-MONITOR COMPONENTS SCANNED (#)	0
NUMBER OF UNSAFE-TO-MONITOR COMPONENTS SCANNED (#)	0

LDAR FLIR Monitoring Form



LEAKS DETECTED (Attach additional sheets if necessary)				
Location Description	Date Detected	Date Repaired	Camera Model and ID for Rescan	Corrective Action Description <i>For Each Attempt</i>
7 3H GPU Run 1 Fuel Gas Stainless Fitting	8/16/2017	8/16/2017	FLIR GF 320 S/N: 44401600	1 st Tightened
8 5H GPU Run 2 High Low Quick Exhaust	8/16/2017	8/17/2017	FLIR GF 320 S/N: 44401600	1 st Greased
9 5H GPU Run 2 Fuel Gas Stainless Fitting	8/16/2017	8/16/2017	FLIR GF 320 S/N: 44401600	1 st Tightened
10 5H GPU Run 2 Fuel Gas Stainless Fitting	8/16/2017	8/16/2017	FLIR GF 320 S/N: 44401600	1 st Tightened
11 5H GPU Run 1 High Low Quick Exhaust	8/16/2017	8/16/2017	FLIR GF 320 S/N: 44401600	1 st Tightened 2 nd Replaced

LDAR FLIR Monitoring Form



AT LEAST ONE STILL IMAGE IS ATTACHED (✓)	✓
ALL STILL IMAGES ARE DATED AND GIS ENABLED (✓)	✓
LEAKER STILL IMAGES ARE ATTACHED (✓ or N/A)	✓
REPAIR STILL IMAGES ARE ATTACHED (✓ or N/A)	✓
MONITORING PLAN AND OBSERVATION PATH WERE FOLLOWED* (✓)	✓
DELAY OF REPAIR FORMS COMPLETE (✓ or N/A)	N/A

*If either plan or path were not followed, please include a written description and explanation with this form.

ADDITIONAL OHIO CALCULATION:

$$Leak\% = \frac{t_{Leak}}{Count_{Est}} \times 100\%$$

LEAKER COUNT	11
ESTIMATED COMPONENT COUNT*	849
LEAK PERCENT**	1.29 %

*Provided by Emission Permitting Specialist or Coordinator; estimated using Subpart W population count factors.

** If Leak Percent is greater than 2.0%, increase monitoring frequency to quarterly.

Signature: **(b) (6)** Date: 16 August 2017

Initial Site Photo

Location: Well Head

Date & Time: 8/16/2017 8:40:38 AM

Geolocation: (b) (9)



Camera Verification Photo

Location: GPU Stack

Date & Time: 8/16/2017 8:41:04 AM

Geolocation: (b) (9)



TACO-20160816-001IR Leaking

Location: Fuel Skid Dump Control for Concentrate Separator

Date & Time: 8/16/2017 8:55:01 AM

Geolocation: (b) (9)

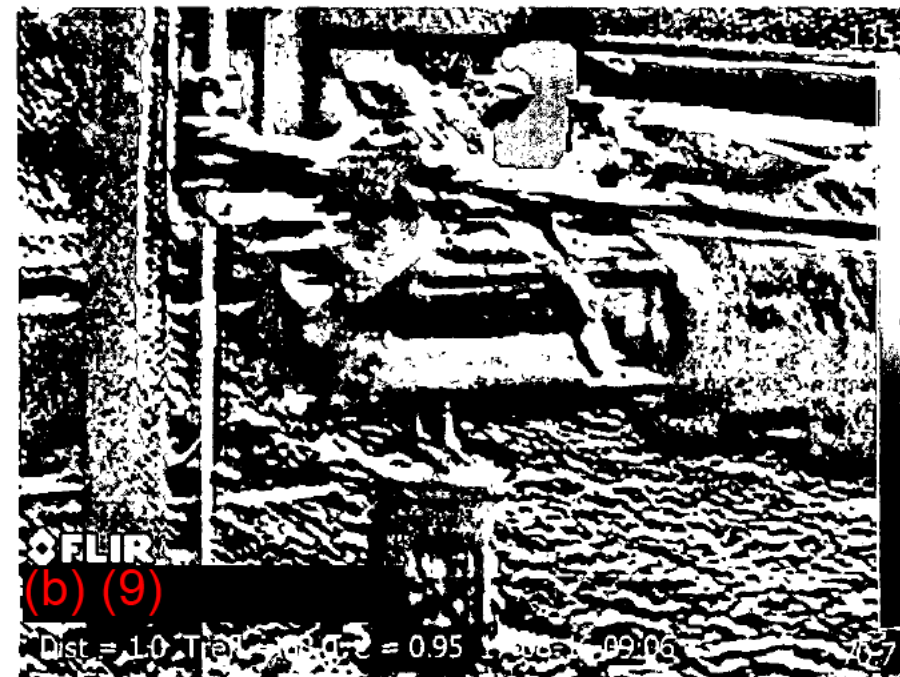


TACO-20160816-001IR Repaired

Location: Fuel Skid Dump Control for Concentrate Separator

Date & Time: 8/16/2017 9:06:29 AM

Geolocation: (b) (9)



TACO-20160816-002IR Leaking

Location: 1H GPU Run 2 Piper Valve Grease Fitting

Date & Time: 8/16/2017 9:11:07 AM

Geolocation: (b) (9)

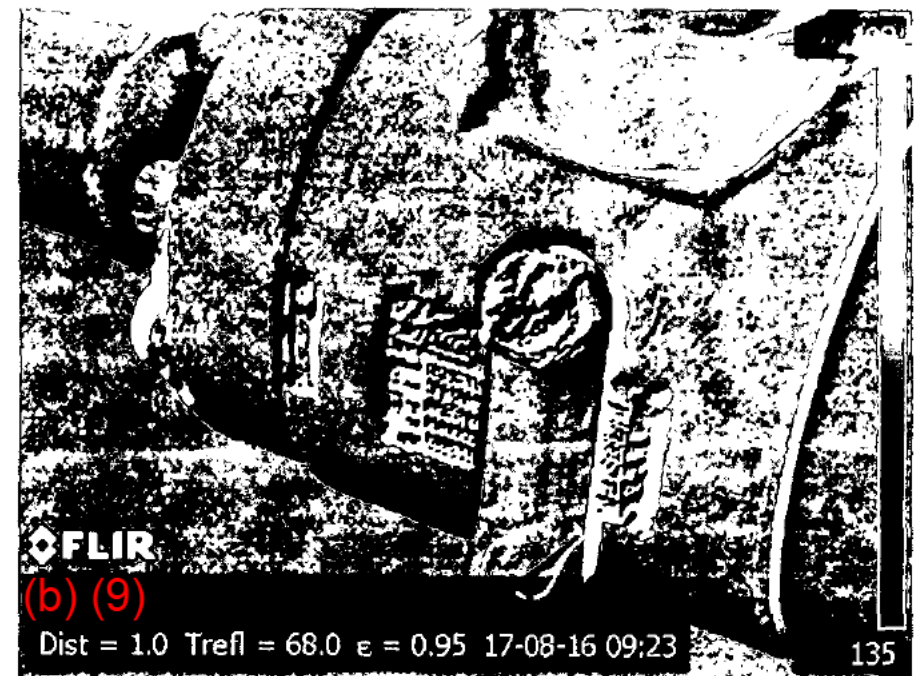


TACO-20160816-002IR Repaired

Location: 1H GPU Run 2 Piper Valve Grease Fitting

Date & Time: 8/16/2017 9:23:24 AM

Geolocation: (b) (9)

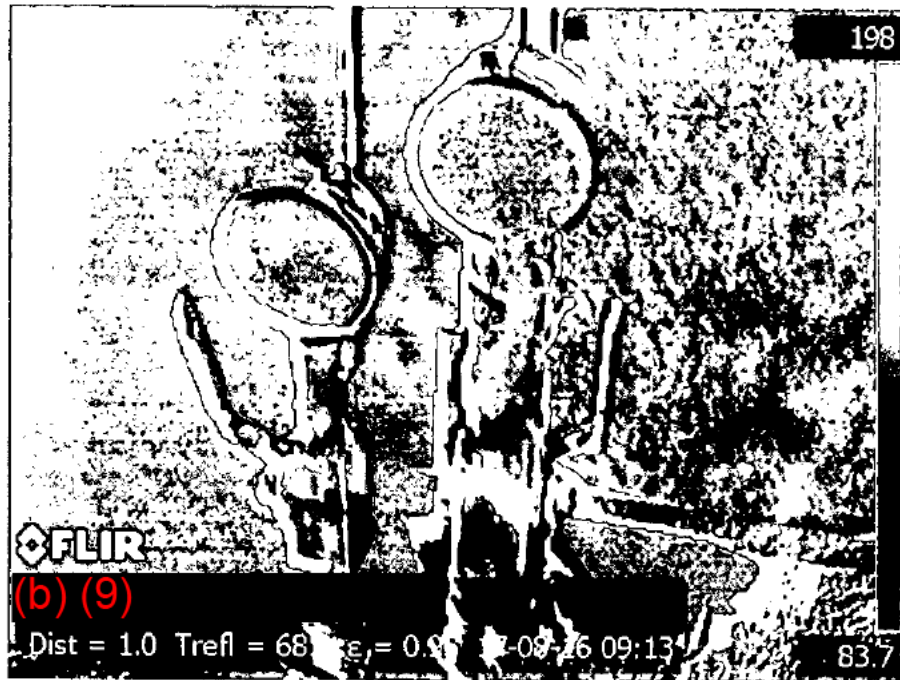


TACO-20160816-003IR Leaking

Location: 1H GPU Run 1 Main Burner Stainless Fitting

Date & Time: 8/16/2017 9:13:51 AM

Geolocation: (b) (9)

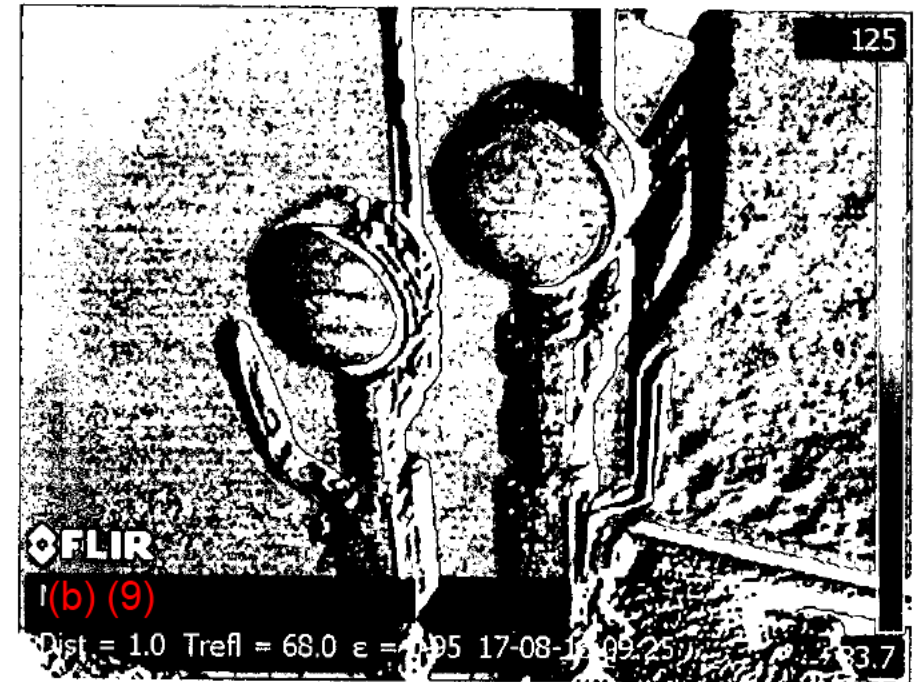


TACO-20160816-003IR Repaired

Location: 1H GPU Run 1 Main Burner Stainless Fitting

Date & Time: 8/16/2017 9:25:58 AM

Geolocation: (b) (9)

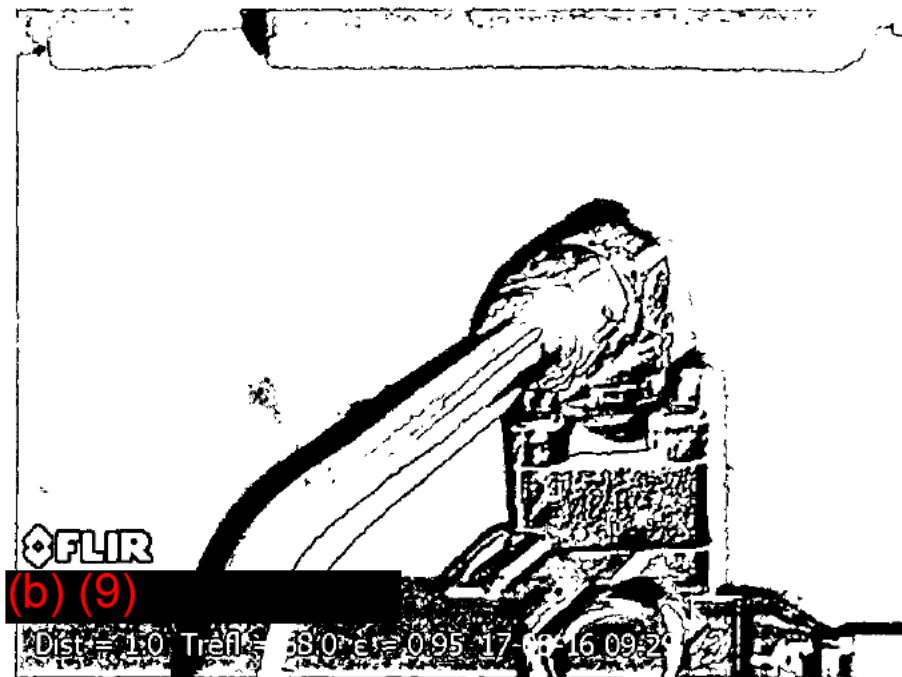


TACO-20160816-004IR Leaking

Location: 3H GPU Run 2 Fuel Gas Stainless Fitting

Date & Time: 8/16/2017 9:29:22 AM

Geolocation: (b) (9)

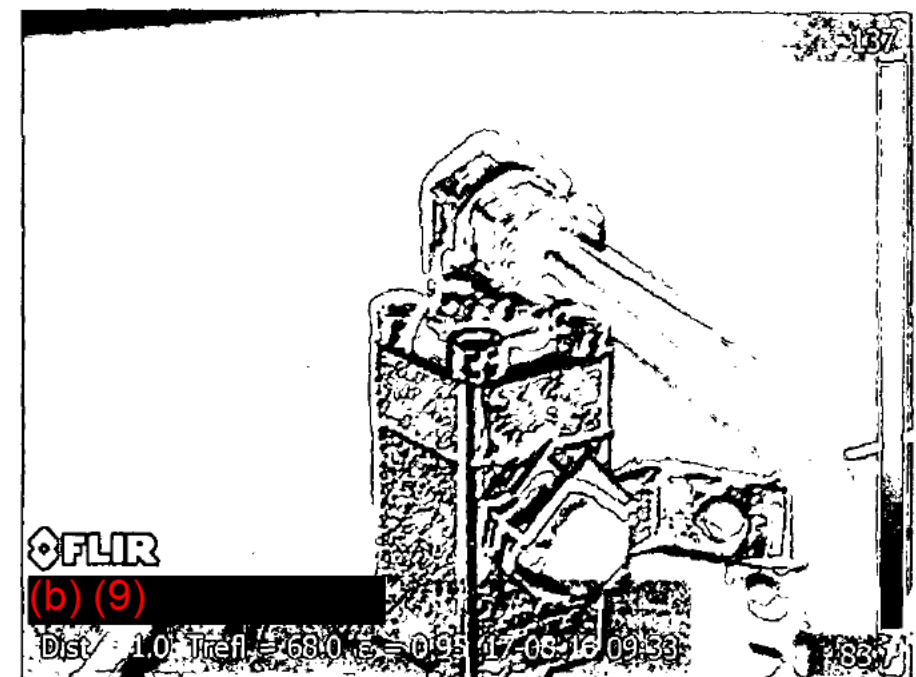


TACO-20160816-004IR Repaired

Location: 3H GPU Run 2 Fuel Gas Stainless Fitting

Date & Time: 8/16/2017 9:33:19 AM

Geolocation: (b) (9)



TACO-20160816-005IR Leaking

Location: 3H GPU Run 2 Fuel Gas Stainless Fitting

Date & Time: 8/16/2017 9:35:21 AM

Geolocation: (b) (9)



TACO-20160816-005IR Repaired

Location: 3H GPU Run 2 Fuel Gas Stainless Fitting

Date & Time: 8/16/2017 9:42:29 AM

Geolocation: (b) (9)

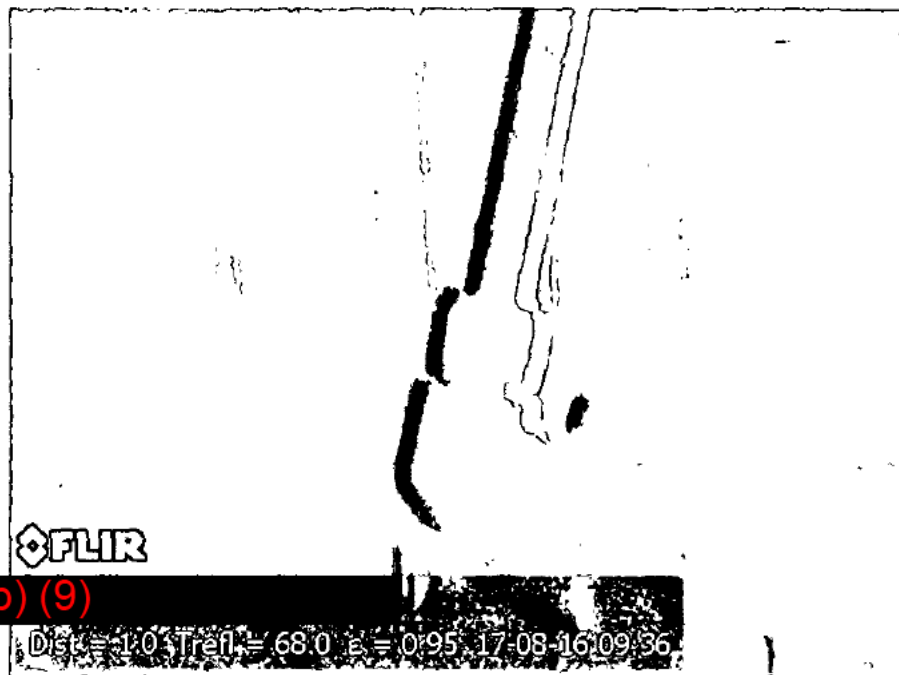


TACO-20160816-006IR Leaking

Location: 3H GPU Run 1 Fuel Gas Stainless Fitting

Date & Time: 8/16/2017 9:36:43 AM

Geolocation: (b) (9)

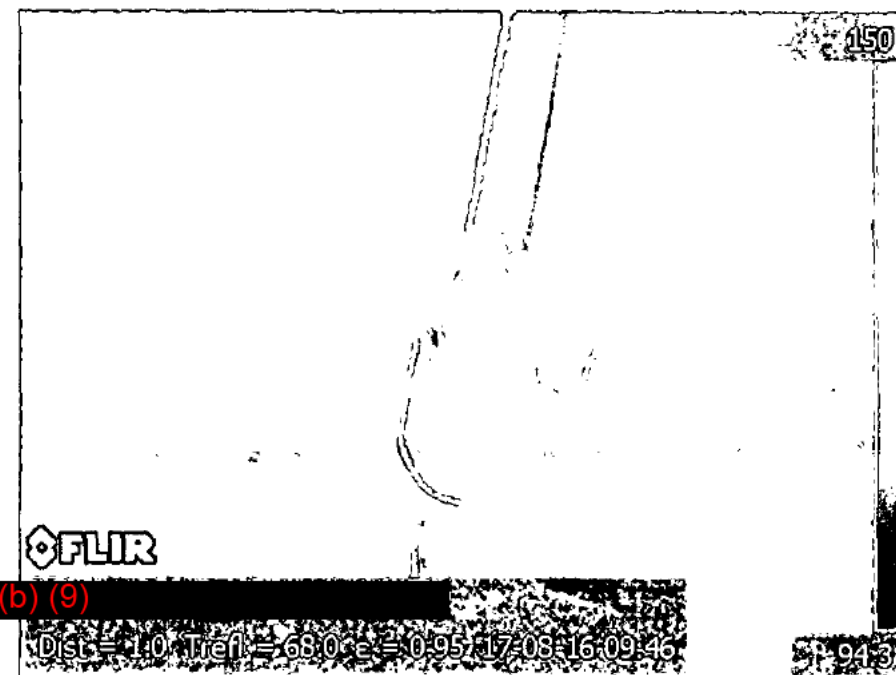


TACO-20160816-006IR Repaired

Location: 3H GPU Run 1 Fuel Gas Stainless Fitting

Date & Time: 8/16/2017 9:46:56 AM

Geolocation: (b) (9)



TACO-20160816-007IR Leaking

Location: 3H GPU Run 1 Fuel Gas Stainless Fitting

Date & Time: 8/16/2017 9:43:39 AM

Geolocation: (b) (9)

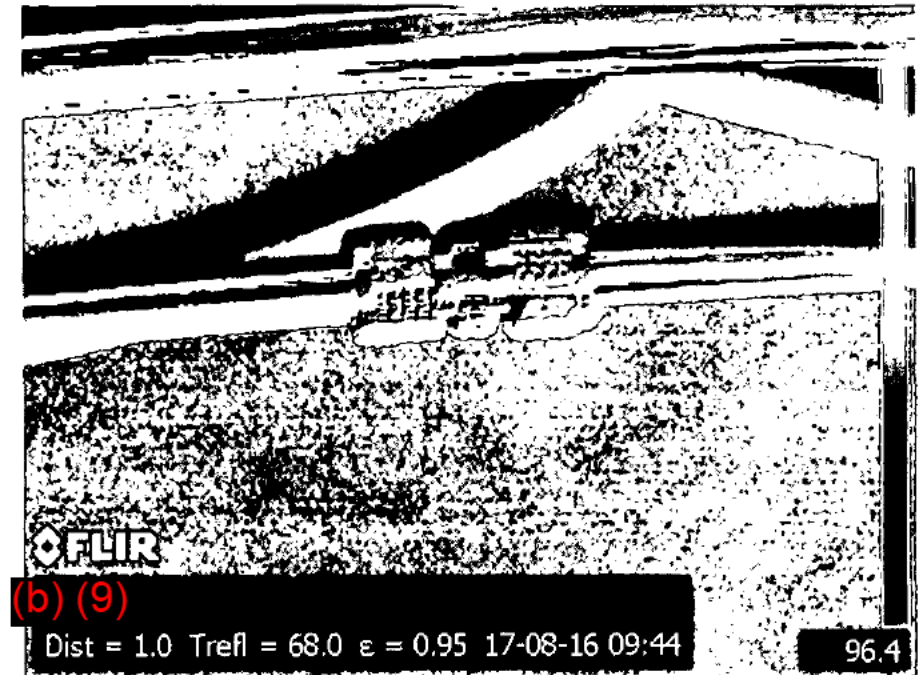


TACO-20160816-007IR Repaired

Location: 3H GPU Run 1 Fuel Gas Stainless Fitting

Date & Time: 8/16/2017 9:44:51 AM

Geolocation: N(b) (9)

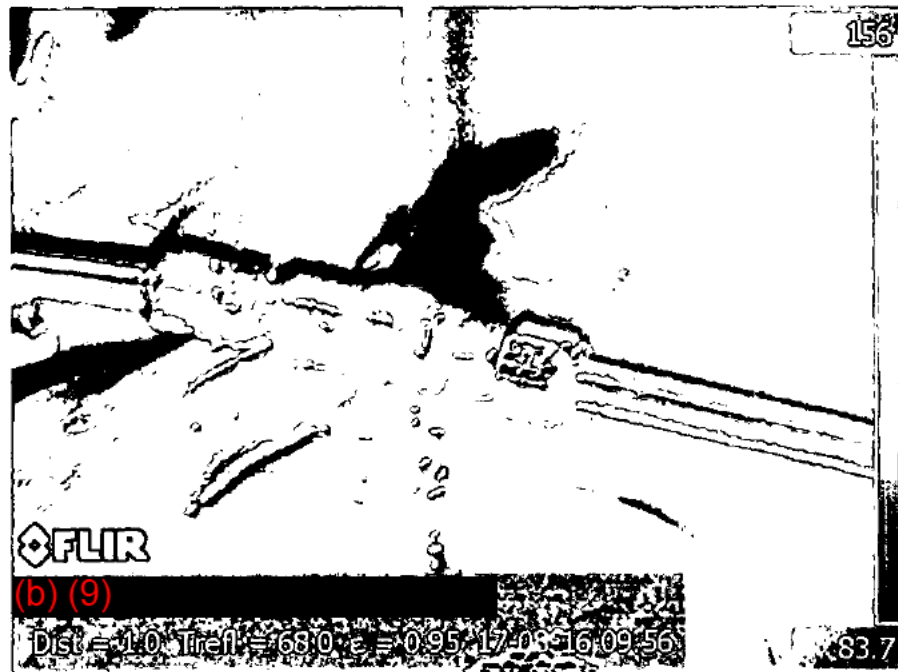


TACO-20160816-008IR Leaking

Location: 5H GPU Run 2 High Low Quick Exhaust

Date & Time: 8/16/2017 9:56:38 AM

Geolocation: (b) (9)

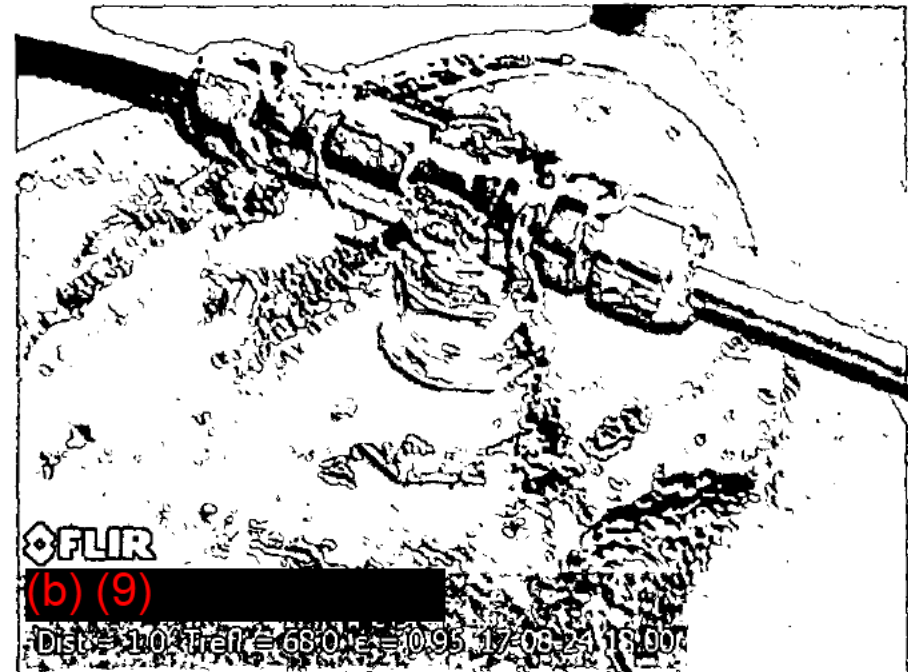


TACO-20160816-008IR Repaired

Location: 5H GPU Run 2 High Low Quick Exhaust

Date & Time: 8/24/2017 6:00:35 PM

Geolocation: (b) (9)

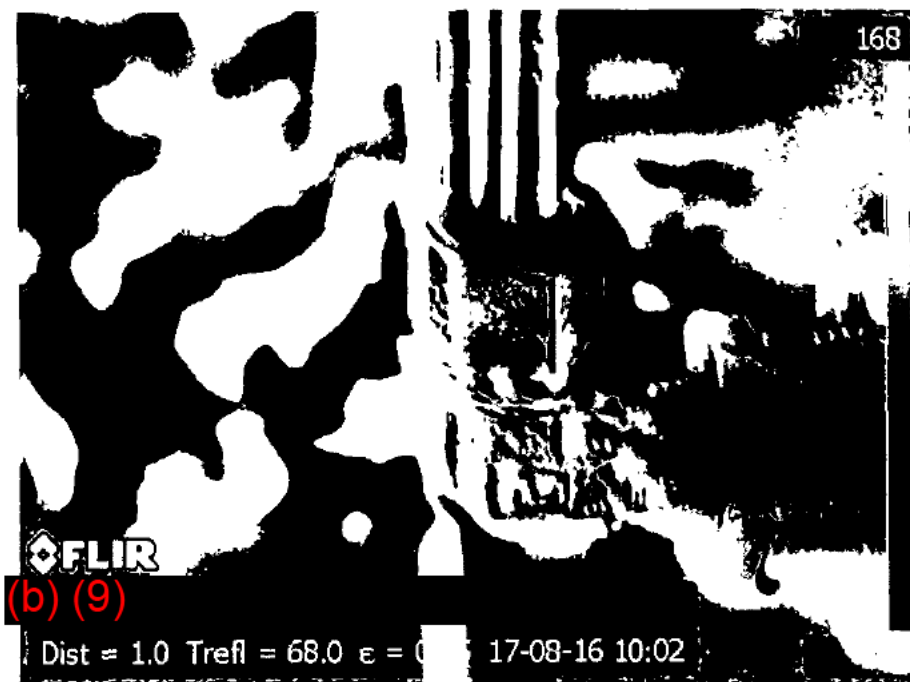


TACO-20160816-009IR Leaking

Location: 5H GPU Run 2 Fuel Gas Stainless Fitting

Date & Time: 8/16/2017 10:02:07 AM

Geolocation: (b) (9)

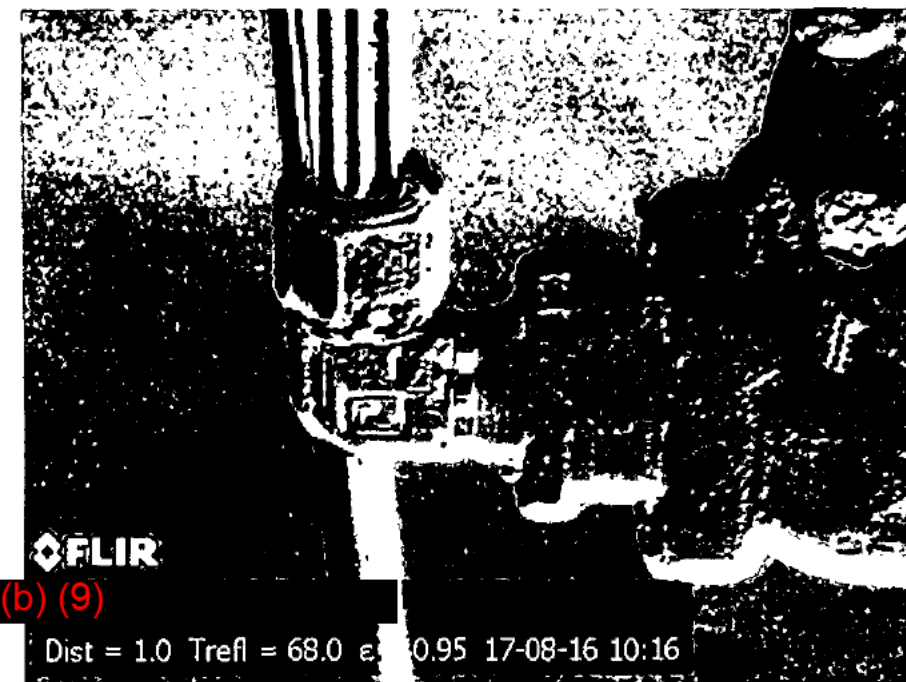


TACO-20160816-009IR Repaired

Location: 5H GPU Run 2 Fuel Gas Stainless Fitting

Date & Time: 8/16/2017 10:16:45 AM

Geolocation: (b) (9)

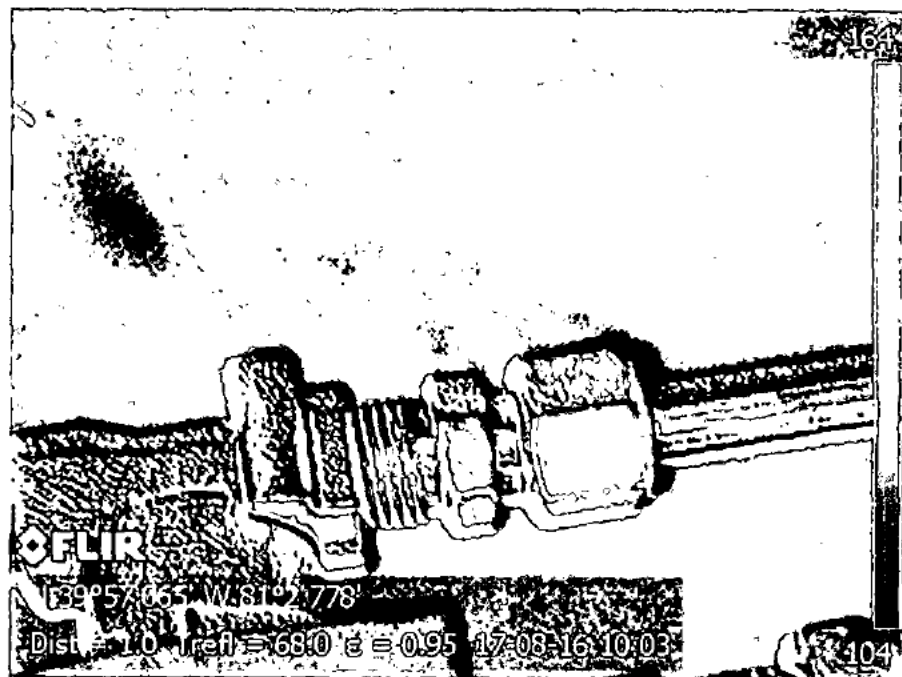


TACO-20160816-010IR Leaking

Location: 5H GPU Run 2 Fuel Gas Stainless Fitting

Date & Time: 8/16/2017 10:03:05 AM

Geolocation: (b) (9)

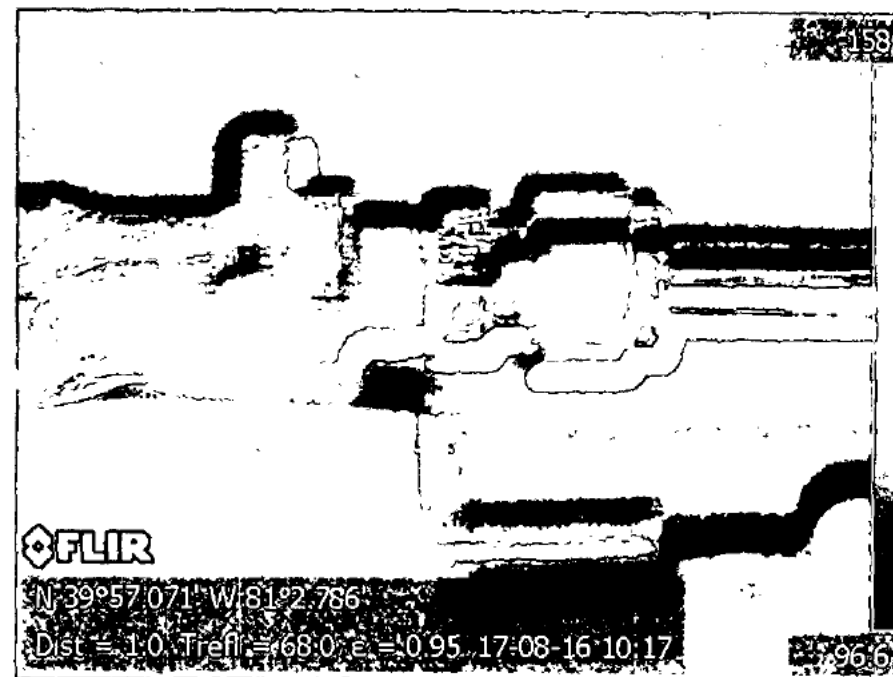


TACO-20160816-010IR Repaired

Location: 5H GPU Run 2 Fuel Gas Stainless Fitting

Date & Time: 8/16/2017 10:17:20 AM

Geolocation: (b) (9)

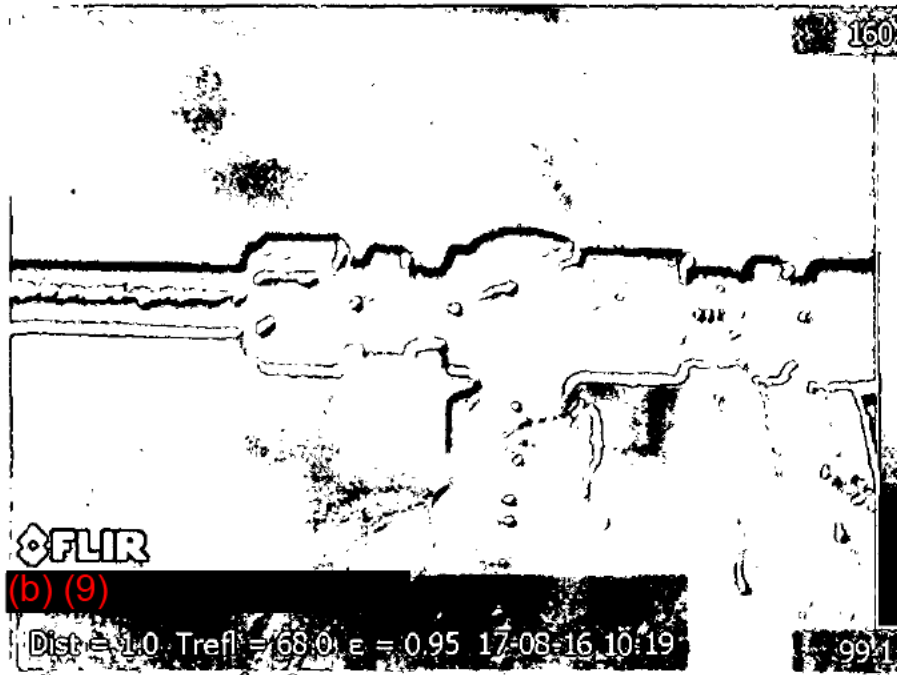


TACO-20160816-011IR Leaking

Location: 5H GPU Run 1 High Low Quick Exhaust

Date & Time: 8/16/2017 10:19:27 AM

Geolocation: (b) (9)

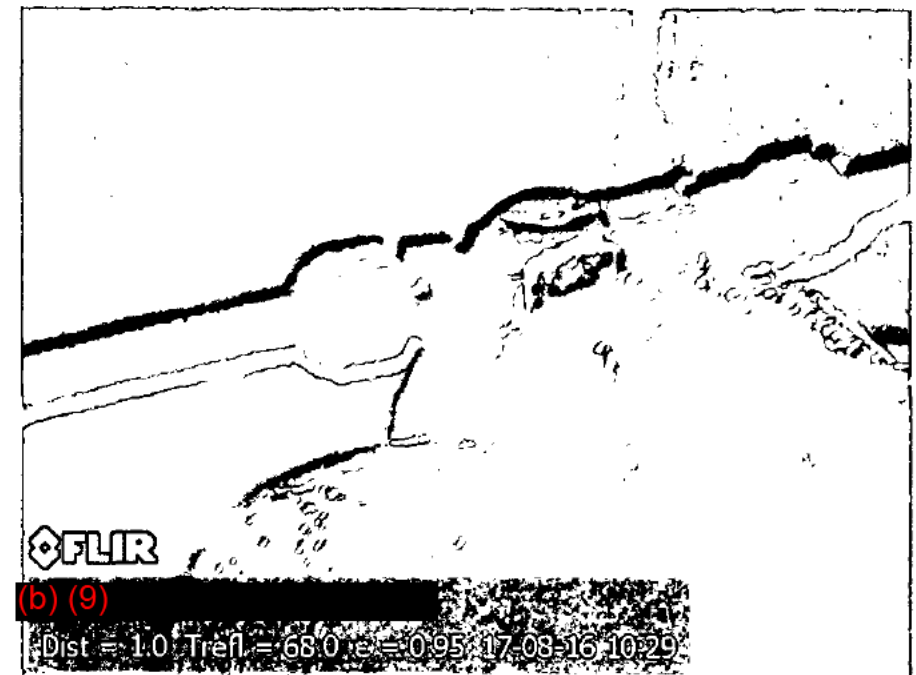


TACO-20160816-011IR Repaired

Location: 5H GPU Run 1 High Low Quick Exhaust

Date & Time: 8/16/2017 10:29:14 AM

Geolocation: (b) (9)





Rice Drilling D LLC
LDAR Inspection Conducted on August 23, 2017
Thrasher Well Pad
1H, 3H, 5H



1 Dane St.
Clarksburg, WV, 26301
304-624-0989
www.premierenergyservices.com



Rice Drilling D LLC

Thrasher 1H, 3H, 5H Leaking Components Report

Inspection Conducted on 08/23/2017

Total Leaking Components	3
Total repairs not made within 30 days	0

Leak #	Location Description	Testing Method	Testing Equipment	Inspection Date	Final Repair Deadline	Repair Date	Corrective Action Description	OGI Retest Date	Repair confirmed with OGI?
THRA-20170823-001	5H GPU Run 1 High- Low Quick Exhaust	OGI	FLIR GF 320	8/23/2017	9/22/2017	8/23/2017	1st Tightened	8/23/2017	YES
THRA-20170823-002	1H GPU Run 2 High- Low Quick Exhaust	OGI	FLIR GF 320	8/23/2017	9/22/2017	8/23/2017	1st Replaced	8/23/2017	YES
THRA-20170823-003	Dehy Supply Gas Stainless Fitting	OGI	FLIR GF 320	8/23/2017	9/22/2017	8/23/2017	1st Tightened	8/23/2017	YES

Inspection Personnel	OGI Certification Number
(b) (6)	163753

LDAR FLIR Monitoring Form



WELLPAD	Thrasher wellpad				
ON-SITE CONTACT	Jed Marshall				
DATE TESTED	8/23/2017	START TIME	1315	END TIME	1515
SKY CONDITIONS	Cloudy	AMBIENT TEMP	74	WIND SPEED	7 mph

CAMERA MODEL	FLIR GF 320
CAMERA ID NUMBER	S/N: 44401600
CAMERA CERTIFICATION DATE	8 August 2016
DAILY VERIFICATION DATE	8/23/2017
MAXIMUM VIEWING DISTANCE	25 feet

MONITORING COMPANY	Premier Energy Services, LLC
MONITORING TECHNICIAN	(b) (6)
TECHNICIAN CERTIFIED? (Y/N)	YES
TECHNICIAN YEARS OF EXPERIENCE	2 Months

LEAKS DETECTED (Attach additional sheets if necessary)

Location Description	Date Detected	Date Repaired	Camera Model and ID for Rescan	Corrective Action Description <i>For Each Attempt</i>
1 5H GPU Run 1 High-Low Quick Exhaust	8/23/2017	8/23/2017	FLIR GF 320 S/N: 44401600	1 st Tightened
2 1H GPU Run 2 High-Low Quick Exhaust	8/23/2017	8/23/2017	FLIR GF 320 S/N: 44401600	1 st Replaced
3 Dehy Supply Gas Stainless Fitting	8/23/2017	8/23/2017	FLIR GF 320 S/N: 44401600	1 st Tightened
4				
5				
6				

NUMBER OF COMPONENTS NOT REPAIRED DURING INITIAL SCAN (#)	0
ALL UNREPAIRED COMPONENTS HAVE BEEN TAGGED (✓)	✓
NUMBER OF DIFFICULT-TO-MONITOR COMPONENTS SCANNED (#)	0
NUMBER OF UNSAFE-TO-MONITOR COMPONENTS SCANNED (#)	0

LDAR FLIR Monitoring Form



AT LEAST ONE STILL IMAGE IS ATTACHED (✓)	✓
ALL STILL IMAGES ARE DATED AND GIS ENABLED (✓)	✓
LEAKER STILL IMAGES ARE ATTACHED (✓ or N/A)	✓
REPAIR STILL IMAGES ARE ATTACHED (✓ or N/A)	✓
MONITORING PLAN AND OBSERVATION PATH WERE FOLLOWED* (✓)	✓
DELAY OF REPAIR FORMS COMPLETE (✓ or N/A)	N/A

*if either plan or path were not followed, please include a written description and explanation with this form.

ADDITIONAL OHIO CALCULATION:

$$Leak\% = \frac{Leak}{Count_{Est}} \times 100\%$$

LEAKER COUNT	3
ESTIMATED COMPONENT COUNT*	1095
LEAK PERCENT**	.27

*Provided by Emission Permitting Specialist or Coordinator; estimated using Subpart W population count factors.

** If Leak Percent is greater than 2.0%, increase monitoring frequency to quarterly.

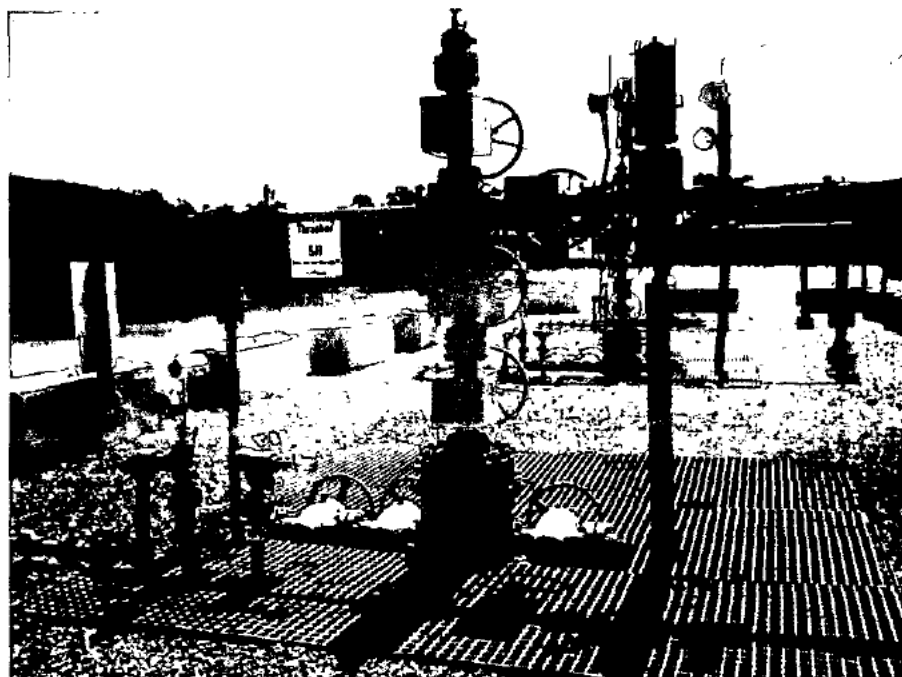
Signature: **(b) (6)** Date: 23 AUGUST 2017

Initial Site Photo

Location: Well Head

Date & Time: 8/23/2017 1:52:33 PM

Geolocation: (b) (9)

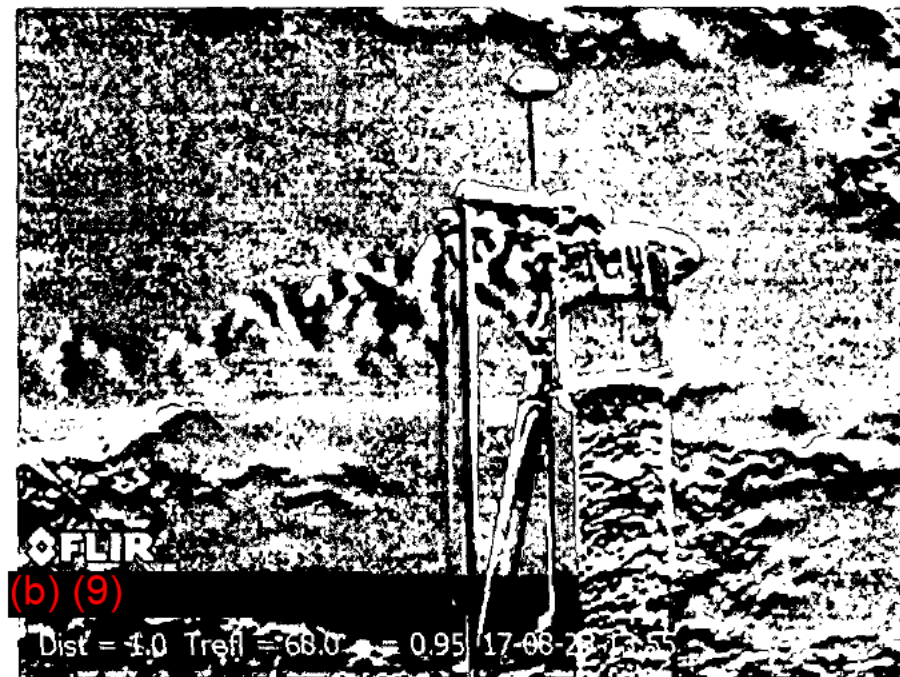


Camera Verification Photo

Location: Dehy Stack

Date & Time: 8/23/2017 1:55:08 PM

Geolocation: (b) (9)



THRA-20170823-001IR Leaking

Location: 5H GPU Run 1 High- Low Quick Exhaust

Date & Time: 8/23/2017 1:59:17 PM

Geolocation: (b) (9)

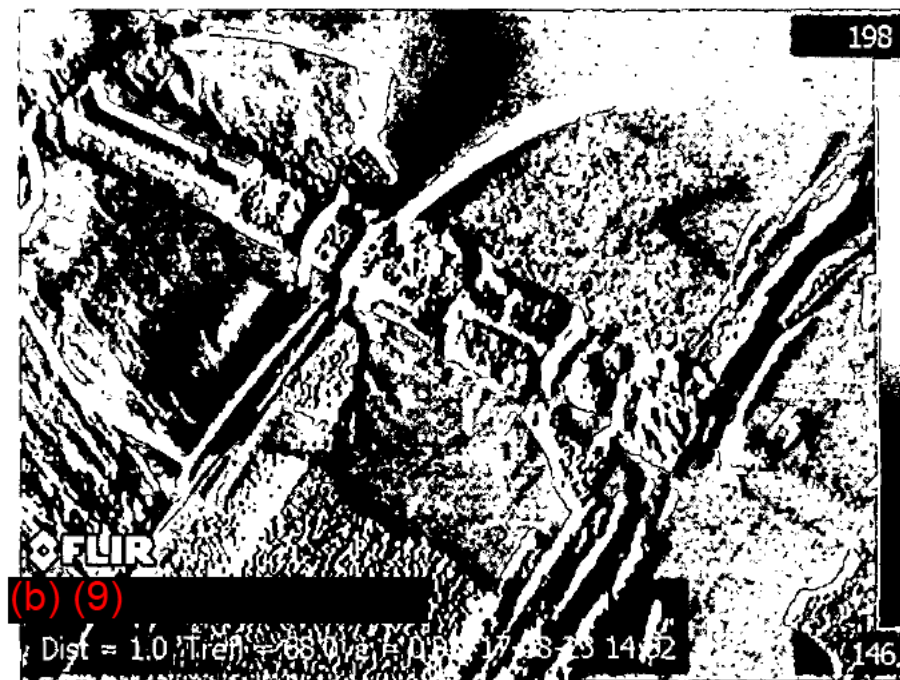


THRA-20170823-001IR Repaired

Location: 5H GPU Run 1 High- Low Quick Exhaust

Date & Time: 8/23/2017 2:32:33 PM

Geolocation: (b) (9)

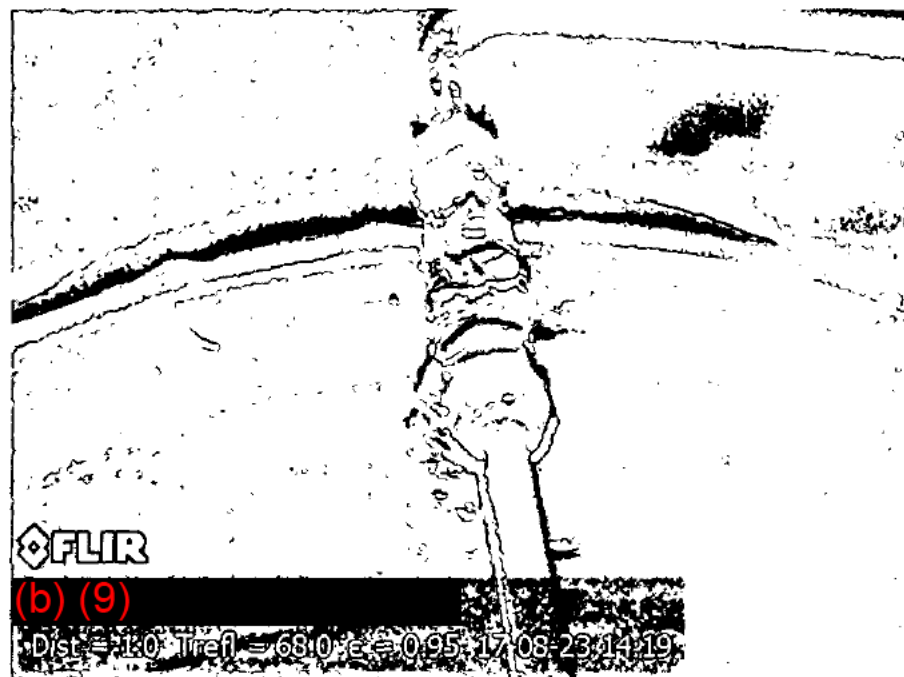


THRA-20170823-002IR Leaking

Location: 1H GPU Run 2 High- Low Quick Exhaust

Date & Time: 8/23/2017 2:19:33 PM

Geolocation: (b) (9)

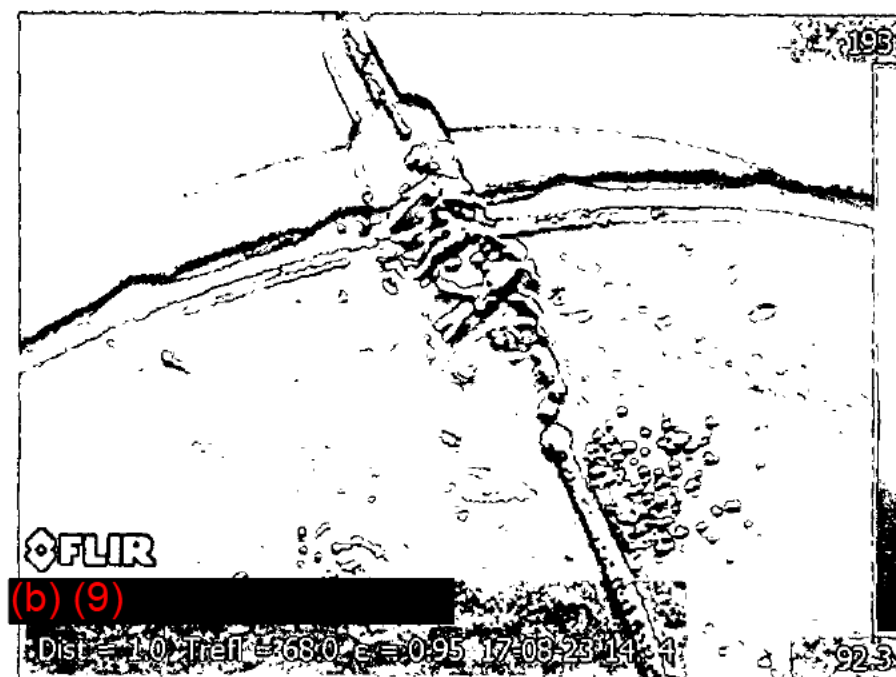


THRA-20170823-002IR Repaired

Location: 1H GPU Run 2 High- Low Quick Exhaust

Date & Time: 8/23/2017 2:34:50 PM

Geolocation: (b) (9)



THRA-20170823-003IR Leaking

Location: Dehy Supply Gas Stainless Fitting

Date & Time: 8/23/2017 2:55:31 PM

Geolocation: (b) (9)

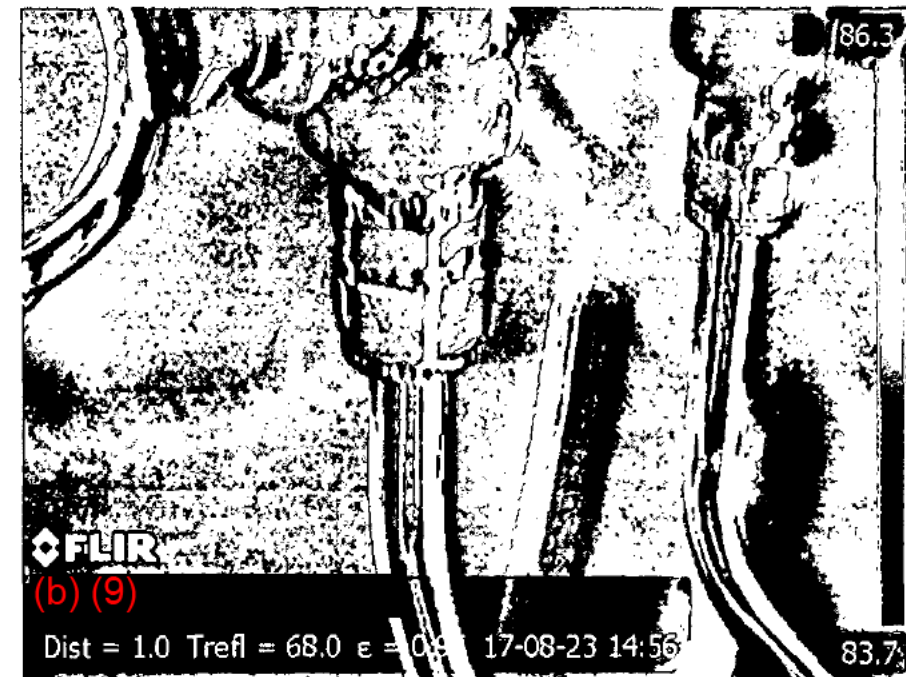


THRA-20170823-003IR Repaired

Location: Dehy Supply Gas Stainless Fitting

Date & Time: 8/23/2017 2:56:40 PM

Geolocation: N(b) (9)





Rice Drilling D, LLC
LDAR Inspection Conducted on August 22, 2017
Thunderstruck Well Pad
2H, 4H, 6H, 8H, 10H



1 Dane St.
Clarksburg, WV, 26301
304-624-0989
www.premierenergyservices.com



Rice Drilling D LLC

Thunderstruck 2H, 4H, 6H, 8H, 10H Leaking Components Report

Inspection Conducted on 08/22/2017

Total Leaking Components	6
Total repairs not made within 30 days	0

Leak #	Location Description	Testing Method	Testing Equipment	Inspection Date	Final Repair Deadline	Repair Date	Corrective Action Description	OGI Retest Date	Repair confirmed with OGI?
THUN-20170822-001	6H GPU Run 2 Level Controller Pilot	OGI	FLIR GF 320	8/22/2017	9/21/2017	8/22/2017	1" Replaced	8/22/2017	YES
THUN-20170822-002	4H GPU Run 1 Pilot	OGI	FLIR GF 320	8/22/2017	9/21/2017	8/22/2017	1" Tightened	8/22/2017	YES
THUN-20170822-003	4H GPU Run 2 Solenoid Stainless Fitting	OGI	FLIR GF 320	8/22/2017	9/21/2017	8/22/2017	1" Tightened	8/22/2017	YES
THUN-20170822-004	8H GPU Run 1 High-Low Quick Exhaust	OGI	FLIR GF 320	8/22/2017	9/21/2017	8/22/2017	1" Replaced	8/22/2017	YES
THUN-20170822-005	2HA GPU Run 1 Stainless Fitting	OGI	FLIR GF 320	8/22/2017	9/21/2017	8/22/2017	1" Tightened	8/22/2017	YES
THUN-20170822-006	10HA GPU Run 1 Solenoid Stainless Fitting	OGI	FLIR GF 320	8/22/2017	9/21/2017	8/22/2017	1" Tightened	8/22/2017	YES

Inspection Personnel	OGI Certification Number
(b) (6)	163753

LDAR FLIR Monitoring Form



WELLPAD	Thunderstruck wellpad				
ON-SITE CONTACT	Jed Marshall				
DATE TESTED	8/22-23/2017	START TIME	1350 1515	END TIME	1530 1600
SKY CONDITIONS	Cloudy	AMBIENT TEMP	84	WIND SPEED	10

CAMERA MODEL	FLIR GF 320
CAMERA ID NUMBER	S/N: 44401600
CAMERA CERTIFICATION DATE	8 August 2016
DAILY VERIFICATION DATE	8/22/2017
MAXIMUM VIEWING DISTANCE	25 feet

MONITORING COMPANY	Premier Energy Services, LLC
MONITORING TECHNICIAN	(b) (6)
TECHNICIAN CERTIFIED? (Y/N)	YES
TECHNICIAN YEARS OF EXPERIENCE	2 Months

LEAKS DETECTED (Attach additional sheets if necessary)

	Location Description	Date Detected	Date Repaired	Camera Model and ID for Rescan	Corrective Action Description <i>For Each Attempt</i>
1	6H GPU Run 2 Level Controller Pilot	8/22/2017	8/22/2017	FLIR GF 320 S/N: 44401600	1 st Replaced
2	4H GPU Run 1 Pilot	8/22/2017	8/22/2017	FLIR GF 320 S/N: 44401600	1 st Tightened
3	4H GPU Run 2 Solenoid Stainless Fitting	8/22/2017	8/22/2017	FLIR GF 320 S/N: 44401600	1 st Tightened
4	8H GPU Run 1 High-Low Quick Exhaust	8/22/2017	8/22/2017	FLIR GF 320 S/N: 44401600	1 st Replaced
5	2HA GPU Run 1 Stainless Fitting	8/22/2017	8/22/2017	FLIR GF 320 S/N: 44401600	1 st Tightened
6	10HA GPU Run 1 Solenoid Stainless Fitting	8/22/2017	8/22/2017	FLIR GF 320 S/N: 44401600	1 st Tightened

NUMBER OF COMPONENTS NOT REPAIRED DURING INITIAL SCAN (#)	0
ALL UNREPAIRED COMPONENTS HAVE BEEN TAGGED (✓)	✓
NUMBER OF DIFFICULT-TO-MONITOR COMPONENTS SCANNED (#)	0
NUMBER OF UNSAFE-TO-MONITOR COMPONENTS SCANNED (#)	0

LDAR FLIR Monitoring Form



AT LEAST ONE STILL IMAGE IS ATTACHED (✓)	✓
ALL STILL IMAGES ARE DATED AND GIS ENABLED (✓)	✓
LEAKER STILL IMAGES ARE ATTACHED (✓ or N/A)	✓
REPAIR STILL IMAGES ARE ATTACHED (✓ or N/A)	✓
MONITORING PLAN AND OBSERVATION PATH WERE FOLLOWED* (✓)	✓
DELAY OF REPAIR FORMS COMPLETE (✓ or N/A)	N/A

*If either plan or path were not followed, please include a written description and explanation with this form.

ADDITIONAL OHIO CALCULATION:

$$Leak\% = \frac{nt_{Leak}}{Count_{Est}} \times 100\%$$

LEAKER COUNT	6
ESTIMATED COMPONENT COUNT*	1826
LEAK PERCENT**	.32

*Provided by Emission Permitting Specialist or Coordinator; estimated using Subpart W population count factors.

** If Leak Percent is greater than 2.0%, increase monitoring frequency to quarterly.

Signature: (b) (6) _____ Date: 23 August 2017

Initial Site Photo

Location: Well Head

Date & Time: 8/22/2017 2:26:45 PM

Geolocation: N(b) (9)



Camera Verification Photo

Location: GPU Stack

Date & Time: 8/22/2017 2:27:47 PM

Geolocation: N(b) (9)



THUN-20170822-001IR Leaking

Location: 6H GPU Run 2 Level Controller Pilot

Date & Time: 8/22/2017 2:29:49 PM

Geolocation: (b) (9)

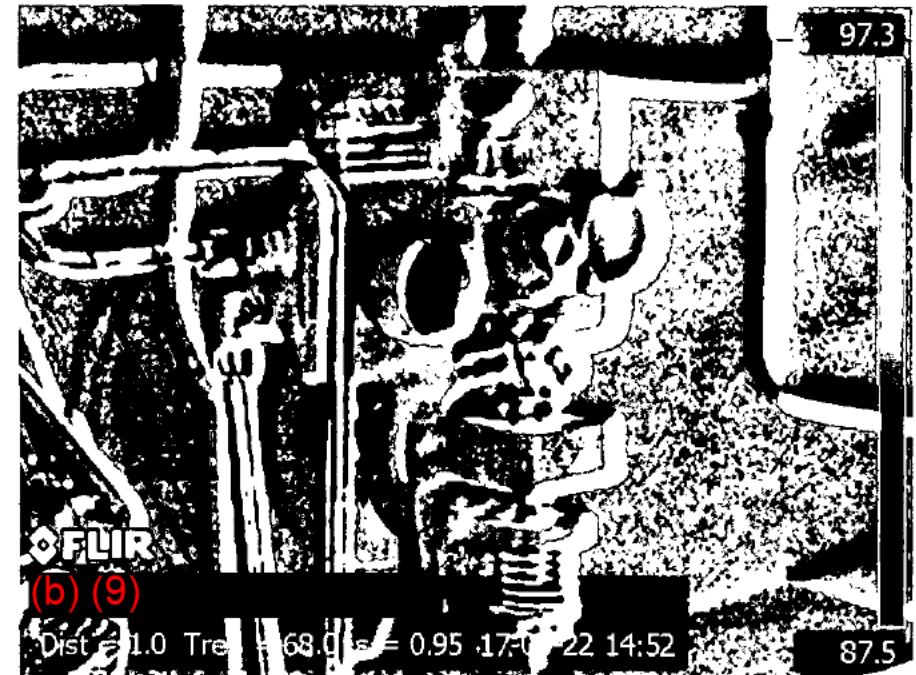


THUN-20170822-001IR Repaired

Location: 6H GPU Run 2 Level Controller Pilot

Date & Time: 8/22/2017 2:52:59 PM

Geolocation: (b) (9)

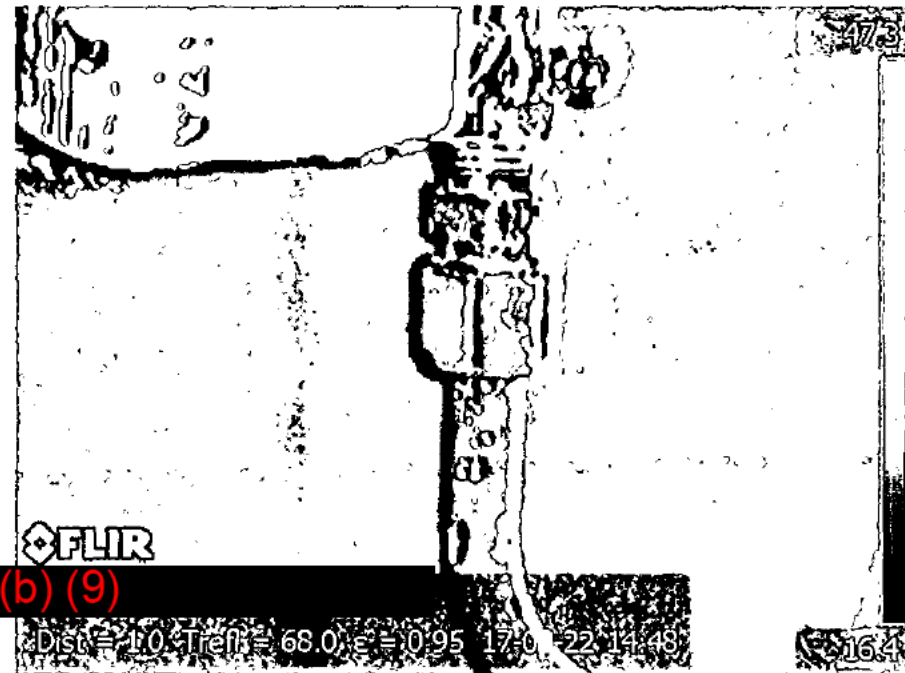


THUN-20170822-002IR Leaking

Location: 4H GPU Run 1 Pilot

Date & Time: 8/22/2017 2:48:53 PM

Geolocation: (b) (9)

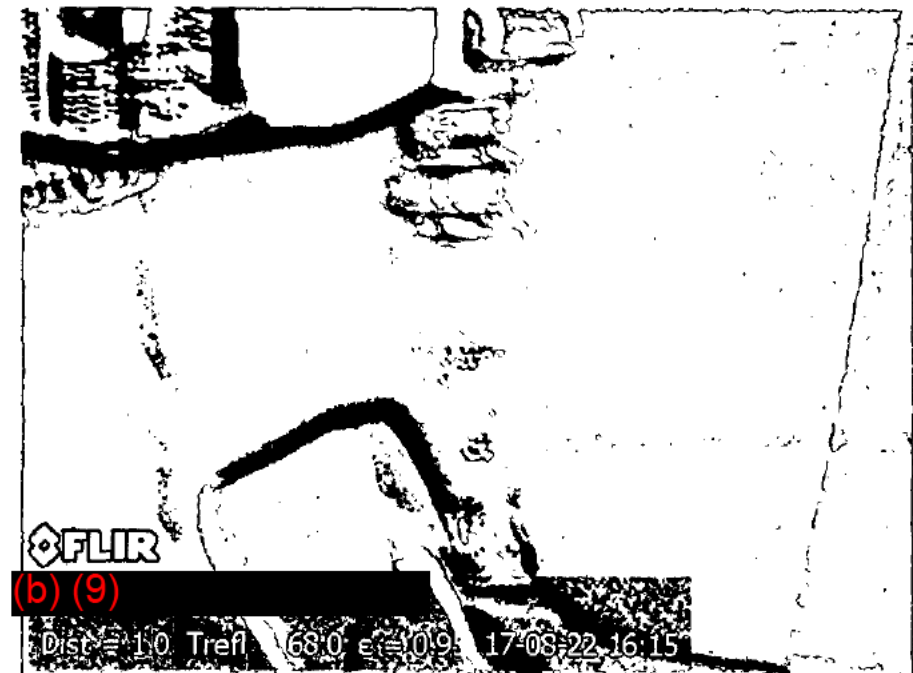


THUN-20170822-002IR Repaired

Location: 4H GPU Run 1 Pilot

Date & Time: 8/22/2017 4:15:20 PM

Geolocation: (b) (9)

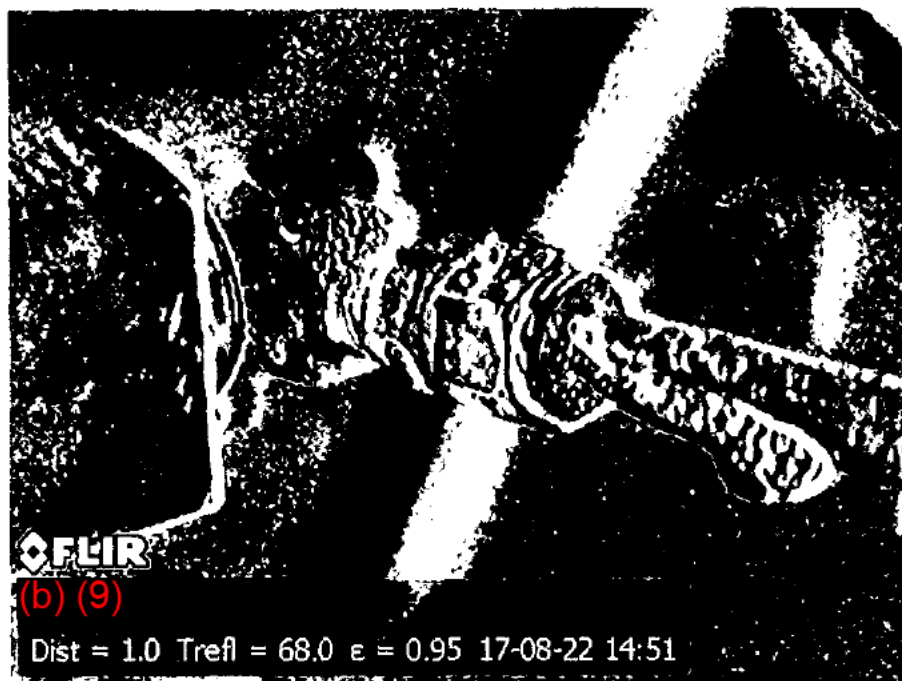


THUN-20170822-003IR Leaking

Location: 4H GPU Run 2 Solenoid Stainless Fitting

Date & Time: 8/22/2017 2:51:26 PM

Geolocation: (b) (9)

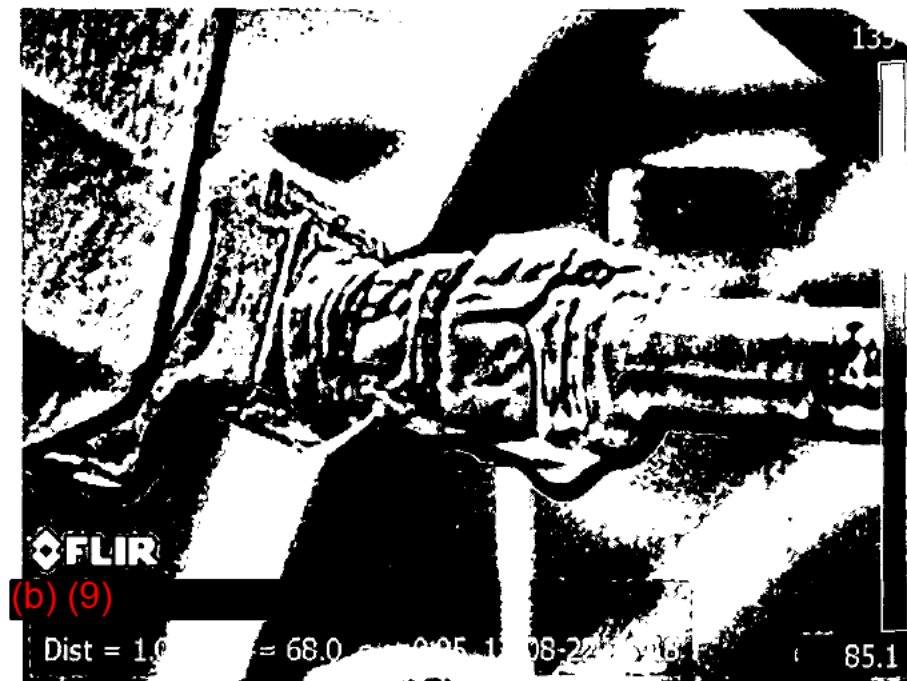


THUN-20170822-003IR Repaired

Location: 4H GPU Run 2 Solenoid Stainless Fitting

Date & Time: 8/22/2017 4:18:54 PM

Geolocation: (b) (9)

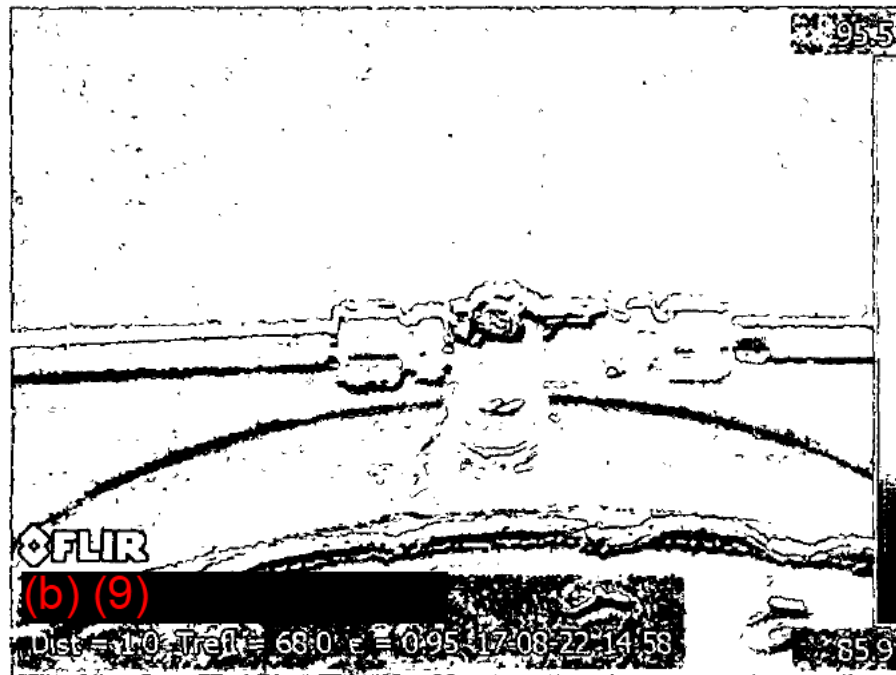


THUN-20170822-004IR Leaking

Location: 8H GPU Run 1 High- Low Quick Exhaust

Date & Time: 8/22/2017 2:58:09 PM

Geolocation: (b) (9)

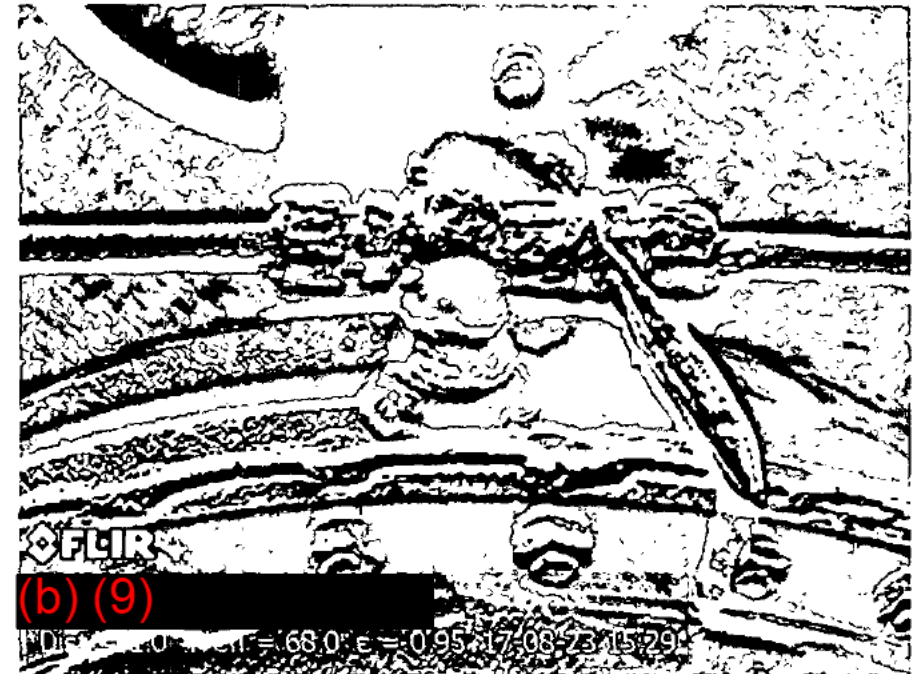


THUN-20170822-004IR Repaired

Location: 8H GPU Run 1 High- Low Quick Exhaust

Date & Time: 8/23/2017 3:29:20 PM

Geolocation: (b) (9)



THUN-20170822-005IR Leaking

Location: 2HA GPU Run 1 Stainless Fitting

Date & Time: 8/22/2017 3:53:48 PM

Geolocation: (b) (9)



THUN-20170822-005IR Repaired

Location: 2HA GPU Run 1 Stainless Fitting

Date & Time: 8/22/2017 4:12:13 PM

Geolocation: N(b) (9)

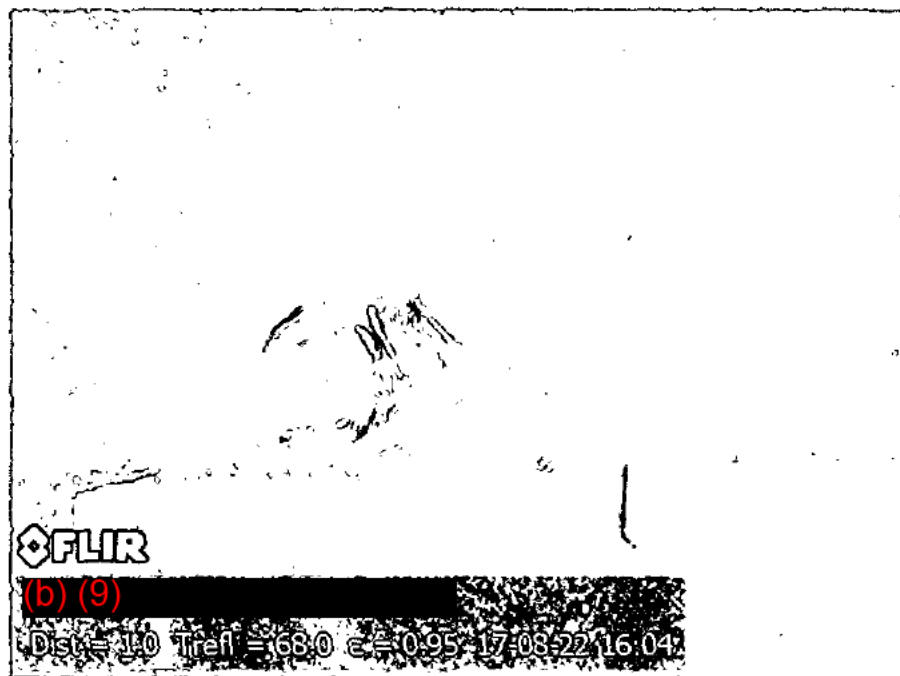


THUN-20170822-006IR Leaking

Location: 10HA GPU Run 1 Solenoid Stainless Fitting

Date & Time: 8/22/2017 4:04:35 PM

Geolocation: (b) (9)

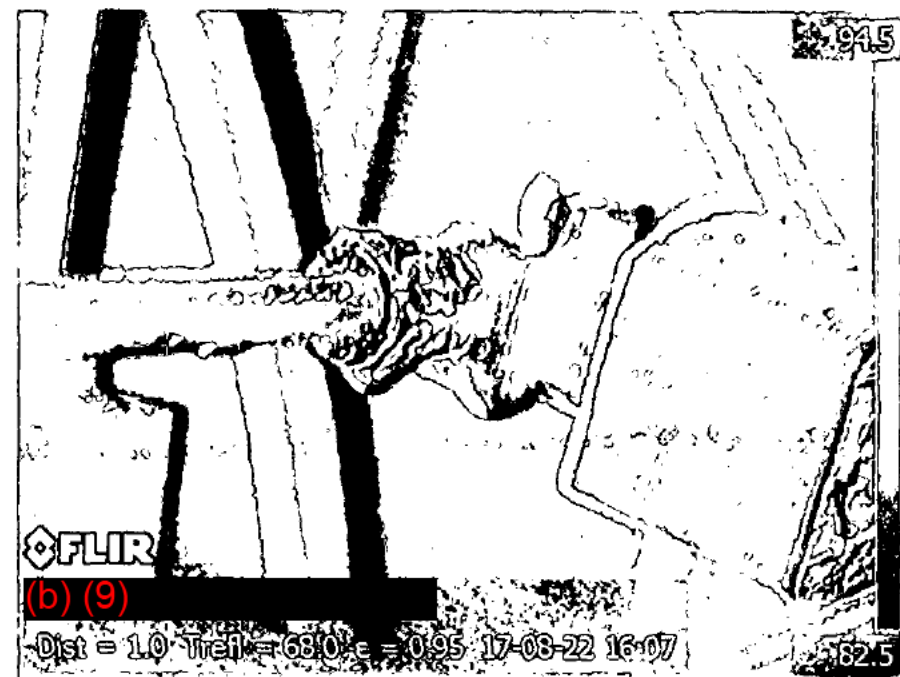


THUN-20170822-006IR Repaired

Location: 10HA GPU Run 1 Solenoid Stainless Fitting

Date & Time: 8/22/2017 4:07:12 PM

Geolocation: (b) (9)





Rice Drilling D LLC
LDAR Inspection Conducted on August 22, 2017
Tuna Nut Well Pad
1H, 3H, 5H, 7H



1 Dane St.
Clarksburg, WV, 26301
304-624-0989
www.premierenergyservices.com



Rice Drilling D LLC

Tuna Nut 1H, 3H, 5H, 7H Leaking Components Report

Inspection Conducted on 08/22/2017

Total Leaking Components	13
Total repairs not made within 30 days	0

Leak #	Location Description	Testing Method	Testing Equipment	Inspection Date	Final Repair Deadline	Repair Date	Corrective Action Description	OGI Retest Date	Repair confirmed with OGI?
TUNA-20170822-001	7H GPU Run 1 Supply to High- Low	OGI	FLIR GF 320	8/22/2017	9/21/2017	8/22/2017	1st Tightened	8/22/2017	YES
TUNA-20170822-002	7H GPU Run 1 Stainless Fitting	OGI	FLIR GF 320	8/22/2017	9/21/2017	8/22/2017	1st Tightened	8/22/2017	YES
TUNA-20170822-003	7H GPU Run 1 Pilot Gas Stainless Fitting	OGI	FLIR GF 320	8/22/2017	9/21/2017	8/22/2017	1st Tightened	8/22/2017	YES
TUNA-20170822-004	7H GPU Run 2 Fuel Supply Union	OGI	FLIR GF 320	8/22/2017	9/21/2017	8/22/2017	1st Tightened	8/22/2017	YES
TUNA-20170822-005	5H GPU Run 2 Solenoid Stainless Fitting	OGI	FLIR GF 320	8/22/2017	9/21/2017	8/22/2017	1st Tightened	8/22/2017	YES
TUNA-20170822-006	5H GPU Run 1 Solenoid Stainless Fitting	OGI	FLIR GF 320	8/22/2017	9/21/2017	8/22/2017	1st Tightened	8/22/2017	YES
TUNA-20170822-007	3H GPU Run 2 Fuel Supply Union	OGI	FLIR GF 320	8/22/2017	9/21/2017	8/22/2017	1st Tightened	8/22/2017	YES
TUNA-20170822-008	3H GPU Run 2 Fuel Supply 1/2 Inch Nipple	OGI	FLIR GF 320	8/22/2017	9/21/2017	9/1/2017	1st Retaped	9/1/2017	YES
TUNA-20170822-009	3H GPU Run 2 Fuel Supply 1 Inch Nipple	OGI	FLIR GF 320	8/22/2017	9/21/2017	9/1/2017	1st Retaped	9/1/2017	YES
TUNA-20170822-010	3H GPU Run 1 Fuel Supply Gauge	OGI	FLIR GF 320	8/22/2017	9/21/2017	8/22/2017	1st Tightened	8/22/2017	YES
TUNA-20170822-011	1H GPU Run 2 Pilot Gas Stainless Fitting	OGI	FLIR GF 320	8/22/2017	9/21/2017	8/22/2017	1st Tightened	8/22/2017	YES
TUNA-20170822-012	1H GPU Run 2 Union	OGI	FLIR GF 320	8/22/2017	9/21/2017	8/22/2017	1st Tightened	8/22/2017	YES
TUNA-20170822-013	1H GPU Run 2 Union	OGI	FLIR GF 320	8/22/2017	9/21/2017	8/22/2017	1st Tightened	8/22/2017	YES

Inspection Personnel	OGI Certification Number
(b) (6)	163753

LDAR FLIR Monitoring Form



WELLPAD	Tuna Nut wellpad				
ON-SITE CONTACT	Jed Marshall				
DATE TESTED	8/22/2017	START TIME	1040	END TIME	1330
SKY CONDITIONS	Cloudy	AMBIENT TEMP	80	WIND SPEED	13

CAMERA MODEL	FLIR GF 320
CAMERA ID NUMBER	S/N: 44401600
CAMERA CERTIFICATION DATE	8 August 2016
DAILY VERIFICATION DATE	8/22/2017
MAXIMUM VIEWING DISTANCE	25 feet

MONITORING COMPANY	Premier Energy Services, LLC
MONITORING TECHNICIAN	(b) (6)
TECHNICIAN CERTIFIED? (Y/N)	YES
TECHNICIAN YEARS OF EXPERIENCE	2 Months

LEAKS DETECTED (Attach additional sheets if necessary)					
Location Description		Date Detected	Date Repaired	Camera Model and ID for Rescan	Corrective Action Description <i>For Each Attempt</i>
1	7H GPU Run 1 Supply to High- Low	8/22/2017	8/22/2017	FLIR GF 320 S/N: 44401600	1 st Tightened
2	7H GPU Run 1 Stainless Fitting	8/22/2017	8/22/2017	FLIR GF 320 S/N: 44401600	1 st Tightened
3	7H GPU Run 1 Pilot Gas Stainless Fitting	8/22/2017	8/22/2017	FLIR GF 320 S/N: 44401600	1 st Tightened
4	7H GPU Run 2 Fuel Supply Union	8/22/2017	8/22/2017	FLIR GF 320 S/N: 44401600	1 st Tightened
5	5H GPU Run 2 Solenoid Stainless Fitting	8/22/2017	8/22/2017	FLIR GF 320 S/N: 44401600	1 st Tightened
6	5H GPU Run 1 Solenoid Stainless Fitting	8/22/2017	8/22/2017	FLIR GF 320 S/N: 44401600	1 st Tightened

NUMBER OF COMPONENTS NOT REPAIRED DURING INITIAL SCAN (#)	2
ALL UNREPAIRED COMPONENTS HAVE BEEN TAGGED (✓)	✓
NUMBER OF DIFFICULT-TO-MONITOR COMPONENTS SCANNED (#)	0
NUMBER OF UNSAFE-TO-MONITOR COMPONENTS SCANNED (#)	0

LDAR FLIR Monitoring Form



AT LEAST ONE STILL IMAGE IS ATTACHED (✓)	✓
ALL STILL IMAGES ARE DATED AND GIS ENABLED (✓)	✓
LEAKER STILL IMAGES ARE ATTACHED (✓ or N/A)	✓
REPAIR STILL IMAGES ARE ATTACHED (✓ or N/A)	✓
MONITORING PLAN AND OBSERVATION PATH WERE FOLLOWED* (✓)	✓
DELAY OF REPAIR FORMS COMPLETE (✓ or N/A)	N/A

*If either plan or path were not followed, please include a written description and explanation with this form.

ADDITIONAL OHIO CALCULATION:

$$Leak\% = \frac{Leak}{Count_{Est}} \times 100\%$$

LEAKER COUNT	13
ESTIMATED COMPONENT COUNT*	1073
LEAK PERCENT**	1.21

*Provided by Emission Permitting Specialist or Coordinator: estimated using Subpart W population count factors.

** If Leak Percent is greater than 2.0%, increase monitoring frequency to quarterly.

Signature: **(b) (6)** Date: 22 Aug-31 2017

LDAR FLIR Monitoring Form



LEAKS DETECTED (Attach additional sheets if necessary)

Location Description		Date Detected	Date Repaired	Camera Model and ID for Rescan	Corrective Action Description <i>For Each Attempt</i>
7	3H GPU Run 2 Fuel Supply Union	8/22/2017	8/22/2017	FLIR GF 320 S/N: 44401600	1 st Tightened
8	3H GPU Run 2 Fuel Supply ½ Inch Nipple	8/22/2017	9/1/2017	FLIR GF 320 S/N: 44401600	1 st Retaped
9	3H GPU Run 2 Fuel Supply 1 Inch Nipple	8/22/2017	9/1/2017	FLIR GF 320 S/N: 44401600	1 st Retaped
10	3H GPU Run 1 Fuel Supply Gauge	8/22/2017	8/22/2017	FLIR GF 320 S/N: 44401600	1 st Tightened
11	1H GPU Run 2 Pilot Gas Stainless Fitting	8/22/2017	8/22/2017	FLIR GF 320 S/N: 44401600	1 st Tightened
12	1H GPU Run 2 Union	8/22/2017	8/22/2017	FLIR GF 320 S/N: 44401600	1 st Tightened
13	1H GPU Run 2 Union	8/22/2017	8/22/2017	FLIR GF 320 S/N: 44401600	1 st Tightened

Initial Site Photo

Location: Well Head

Date & Time: 8/22/2017 10:57:47 AM

Geolocation: (b) (9)

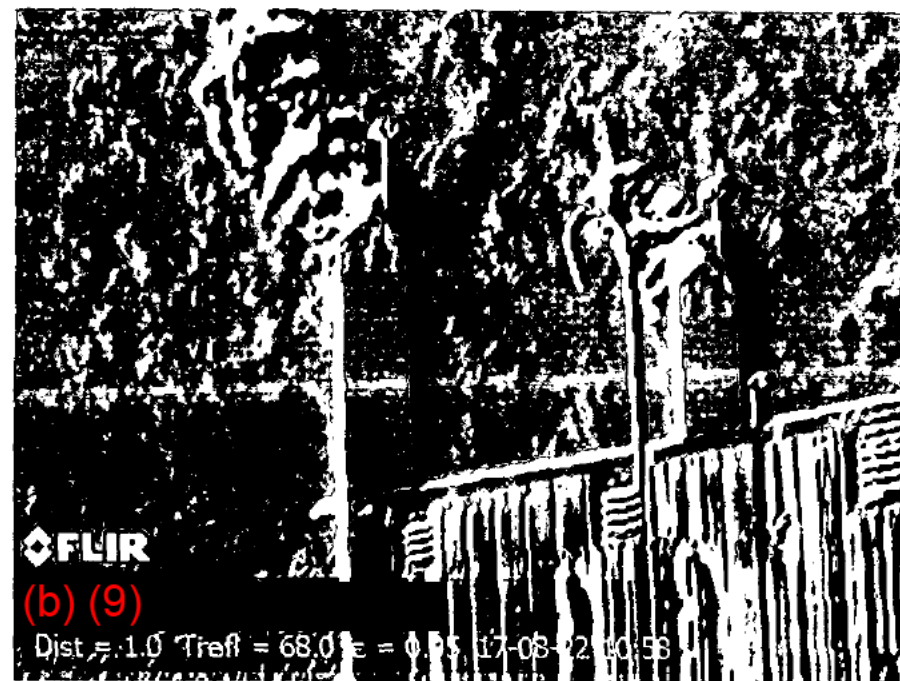


Camera Verification Photo

Location: GPU Stack

Date & Time: 8/22/2017 10:58:51 AM

Geolocation: (b) (9)

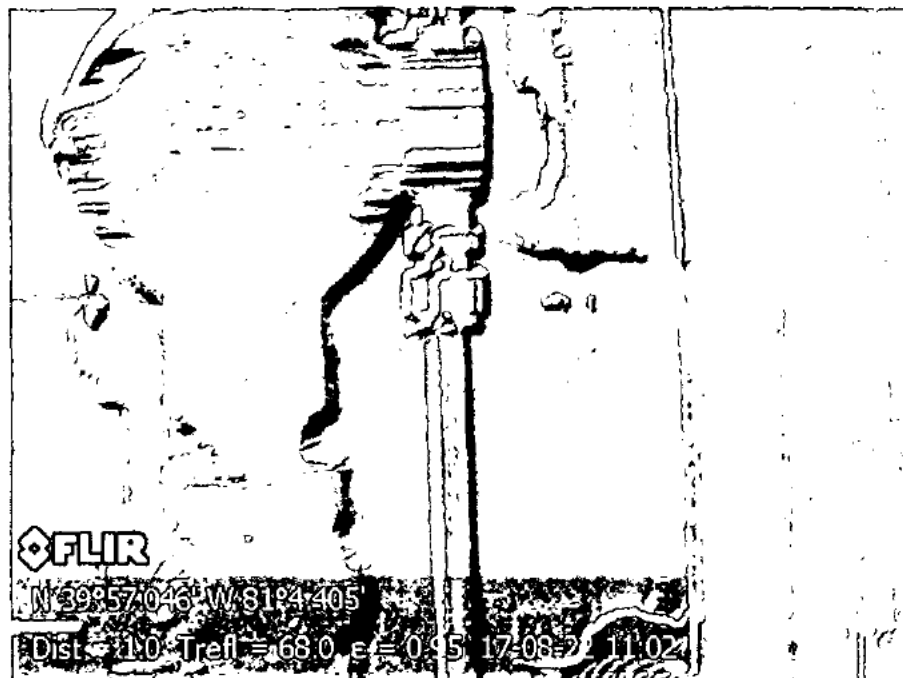


TUNA-20170822-001IR Leaking

Location: 7H GPU Run 1 Supply to High-Low

Date & Time: 8/22/2017 11:02:36 AM

Geolocation: (b) (9)

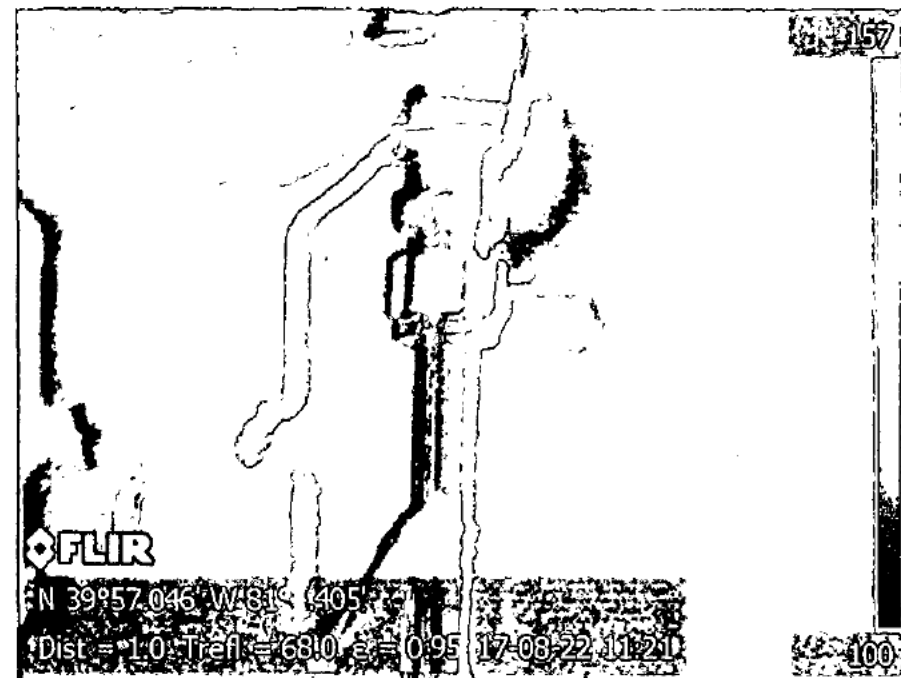


TUNA-20170822-001IR Repaired

Location: 7H GPU Run 1 Supply to High-Low

Date & Time: 8/22/2017 11:21:14 AM

Geolocation: (b) (9)



TUNA-20170822-002IR Leaking

Location: 7H GPU Run 1 Stainless Fitting

Date & Time: 8/22/2017 11:07:29 AM

Geolocation: (b) (9)

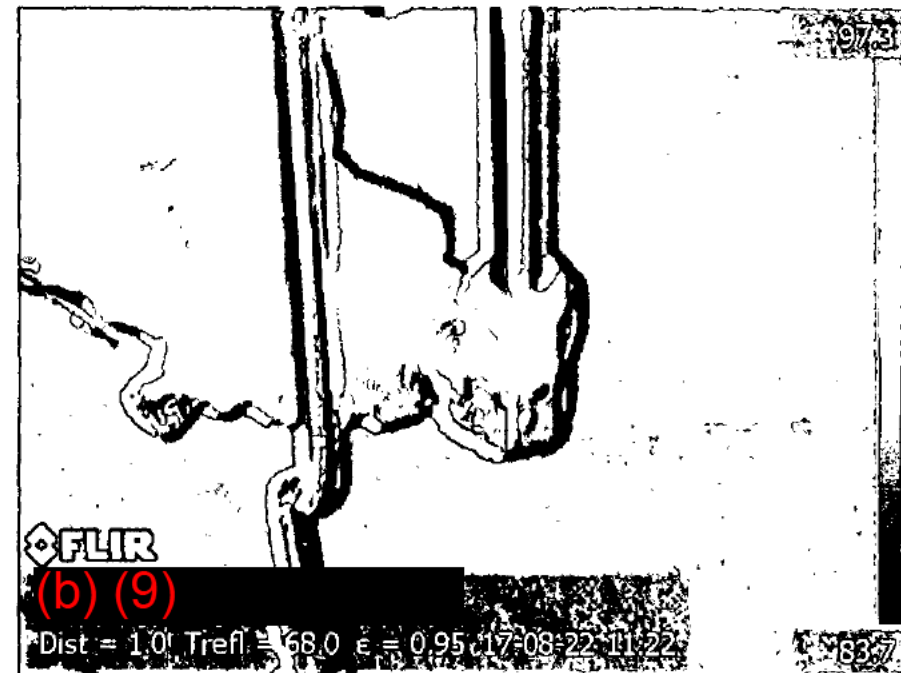


TUNA-20170822-002IR Repaired

Location: 7H GPU Run 1 Stainless Fitting

Date & Time: 8/22/2017 11:22:14 AM

Geolocation: (b) (9)

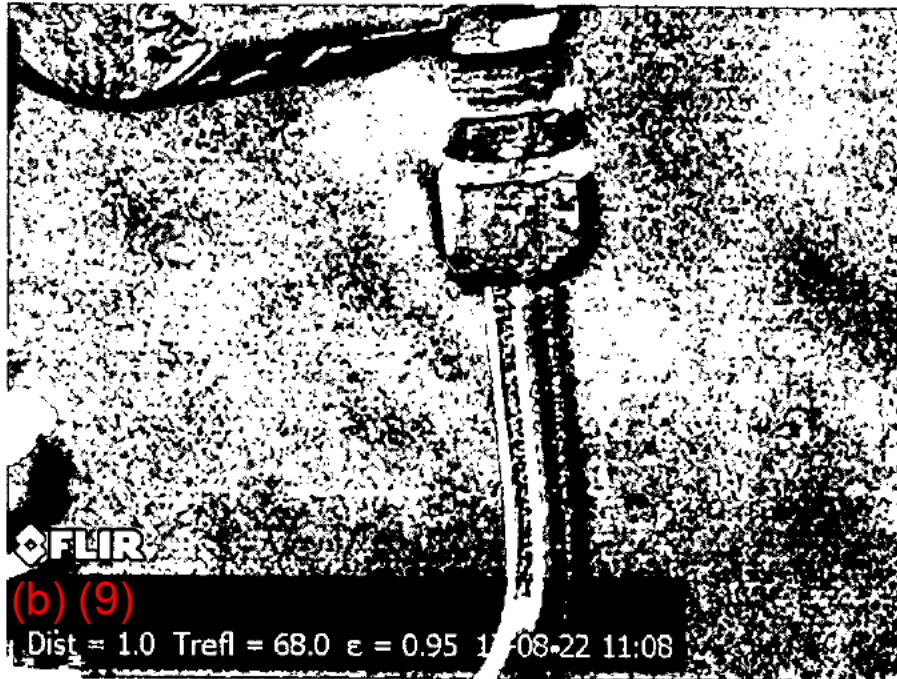


TUNA-20170822-003IR Leaking

Location: 7H GPU Run 1 Pilot Gas Stainless Fitting

Date & Time: 8/22/2017 11:08:41 AM

Geolocation: (b) (9)

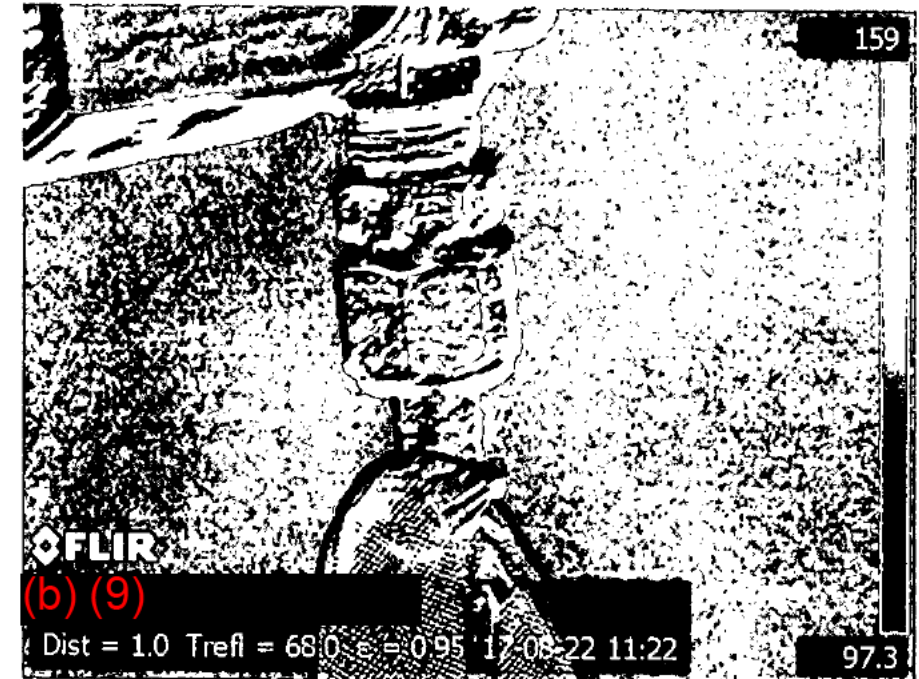


TUNA-20170822-003IR Repaired

Location: 7H GPU Run 1 Pilot Gas Stainless Fitting

Date & Time: 8/22/2017 11:23:00 AM

Geolocation: (b) (9)

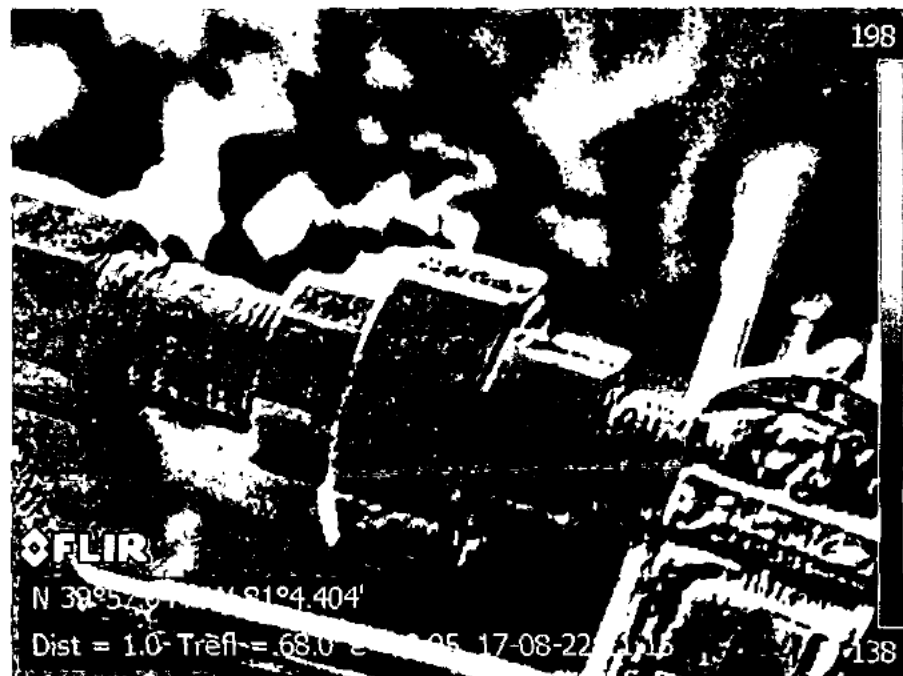


TUNA-20170822-004IR Leaking

Location: 7H GPU Run 2 Fuel Supply Union

Date & Time: 8/22/2017 11:15:05 AM

Geolocation: (b) (9)



TUNA-20170822-004IR Repaired

Location: 7H GPU Run 2 Fuel Supply Union

Date & Time: 8/22/2017 11:24:00 AM

Geolocation: (b) (9)



TUNA-20170822-005IR Leaking

Location: 5H GPU Run 2 Solenoid Stainless Fitting

Date & Time: 8/22/2017 11:30:33 AM

Geolocation: (b) (9)



TUNA-20170822-005IR Repaired

Location: 5H GPU Run 2 Solenoid Stainless Fitting

Date & Time: 8/22/2017 11:38:33 AM

Geolocation: (b) (9)

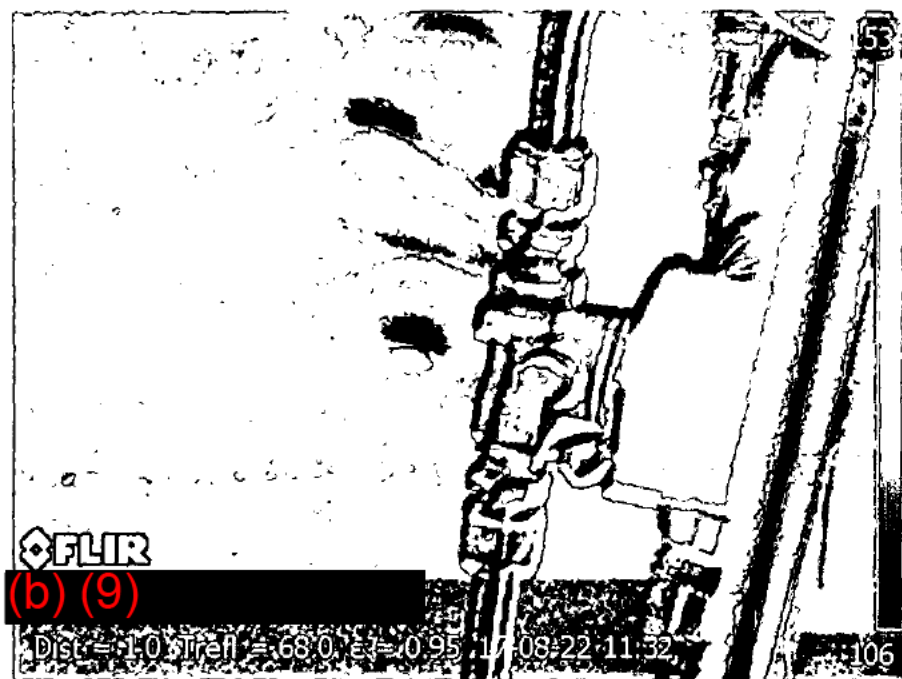


TUNA-20170822-006IR Leaking

Location: 5H GPU Run 1 Solenoid Stainless Fitting

Date & Time: 8/22/2017 11:32:14 AM

Geolocation: (b) (9)



TUNA-20170822-006IR Repaired

Location: 5H GPU Run 1 Solenoid Stainless Fitting

Date & Time: 8/22/2017 11:39:17 AM

Geolocation: (b) (9)

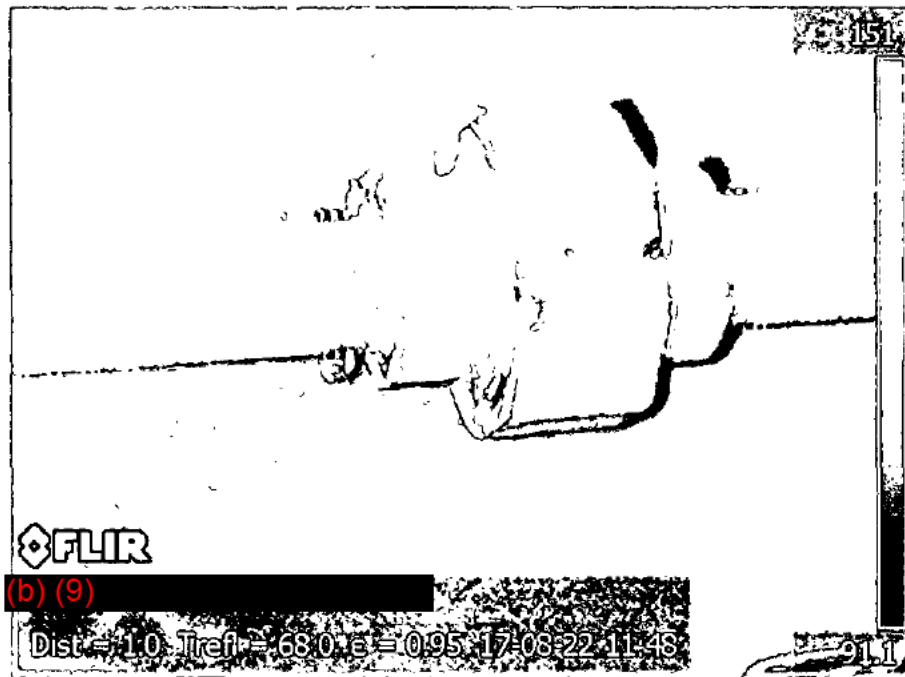


TUNA-20170822-007IR Leaking

Location: 3H GPU Run 2 Fuel Supply Union

Date & Time: 8/22/2017 11:48:41 AM

Geolocation: (b) (9)

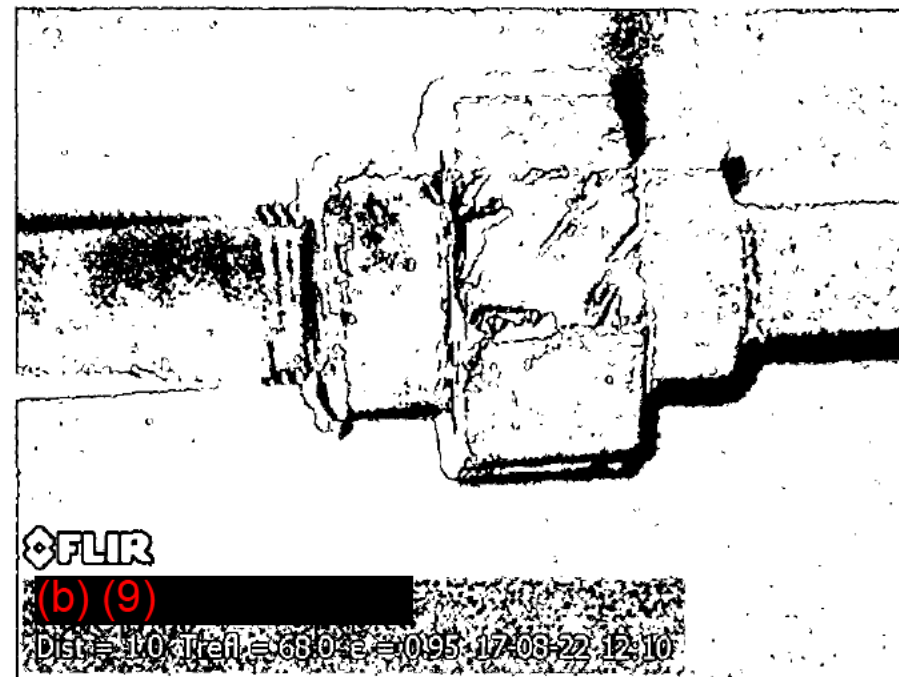


TUNA-20170822-007IR Repaired

Location: 3H GPU Run 2 Fuel Supply Union

Date & Time: 8/22/2017 12:10:42 PM

Geolocation: (b) (9)



TUNA-20170822-008IR Leaking

Location: 3H GPU Run 2 Fuel Supply ½ Inch Nipple

Date & Time: 8/22/2017 11:50:34 AM

Geolocation: (b) (9)

(b) (9)



TUNA-20170822-008IR Repaired

Location: 3H GPU Run 2 Fuel Supply ½ Inch Nipple

Date & Time: 9/1/2017 8:29:27 AM

Geolocation: (b) (9)



TUNA-20170822-009IR Leaking

Location: 3H GPU Run 2 Fuel Supply 1 Inch Nipple

Date & Time: 8/22/2017 11:52:41 AM

Geolocation: (b) (9)



TUNA-20170822-009IR Repaired

Location: 3H GPU Run 2 Fuel Supply ½ Inch Nipple

Date & Time: 9/1/2017 8:30:18 AM

Geolocation: (b) (9)



TUNA-20170822-010IR Leaking

Location: 3H GPU Run 1 Fuel Supply Gauge

Date & Time: 8/22/2017 11:55:45 AM

Geolocation: (b) (9)

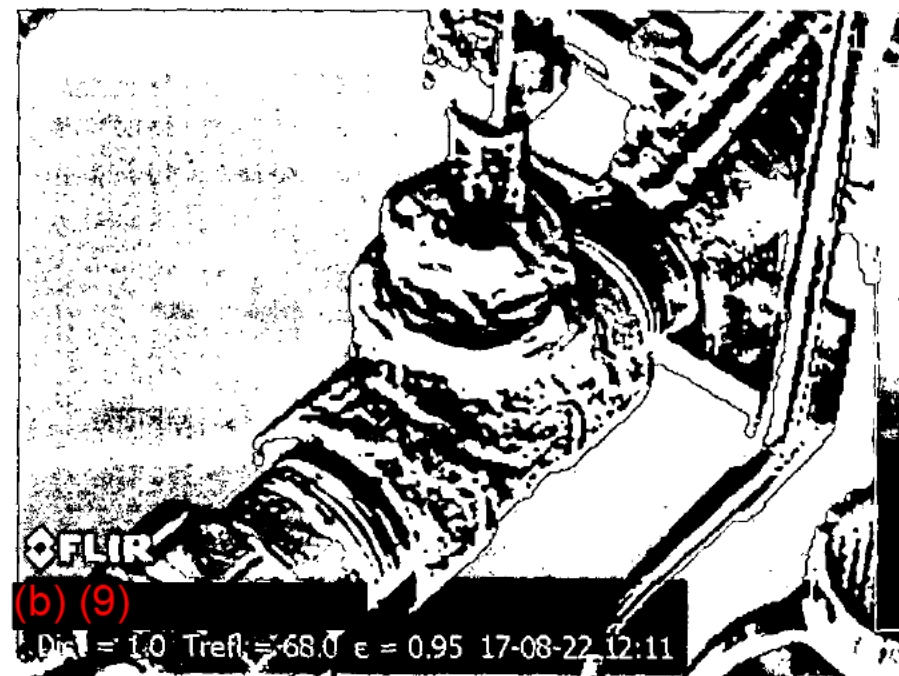


TUNA-20170822-010IR Repaired

Location: 3H GPU Run 1 Fuel Supply Gauge

Date & Time: 8/22/2017 12:11:30 PM

Geolocation: (b) (9)

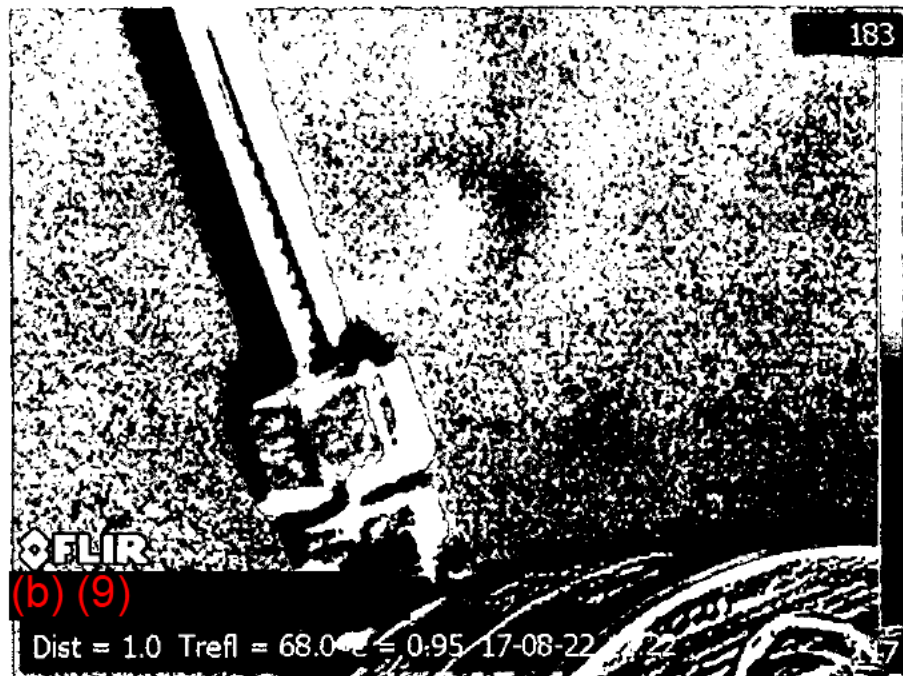


TUNA-20170822-011IR Leaking

Location: 1H GPU Run 2 Pilot Gas Stainless Fitting

Date & Time: 8/22/2017 12:22:10 PM

Geolocation: (b) (9)



TUNA-20170822-011IR Repaired

Location: 1H GPU Run 2 Pilot Gas Stainless Fitting

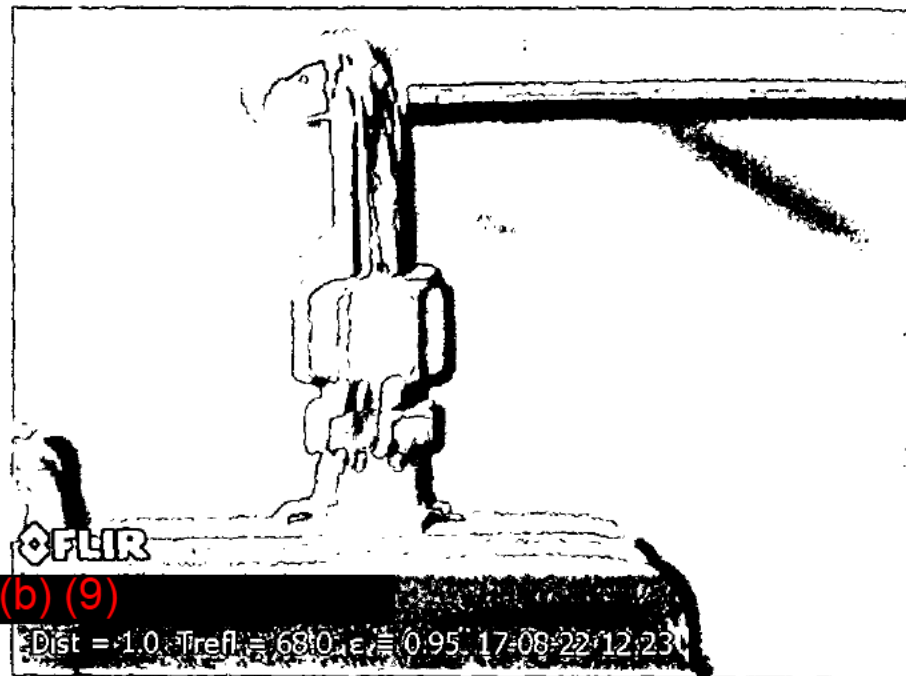
Date & Time: 8/22/2017 12:38:49 PM

Geolocation: (b) (9)



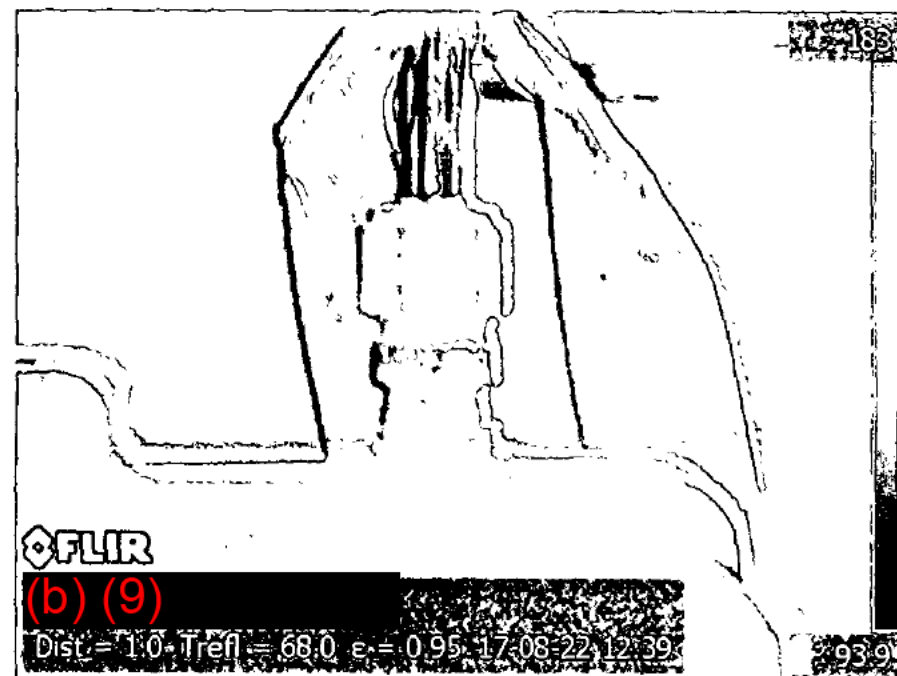
TUNA-20170822-012IR Leaking

Location: 1H GPU Run 2 Union
Date & Time: 8/22/2017 12:23:10 PM
Geolocation: (b) (9)



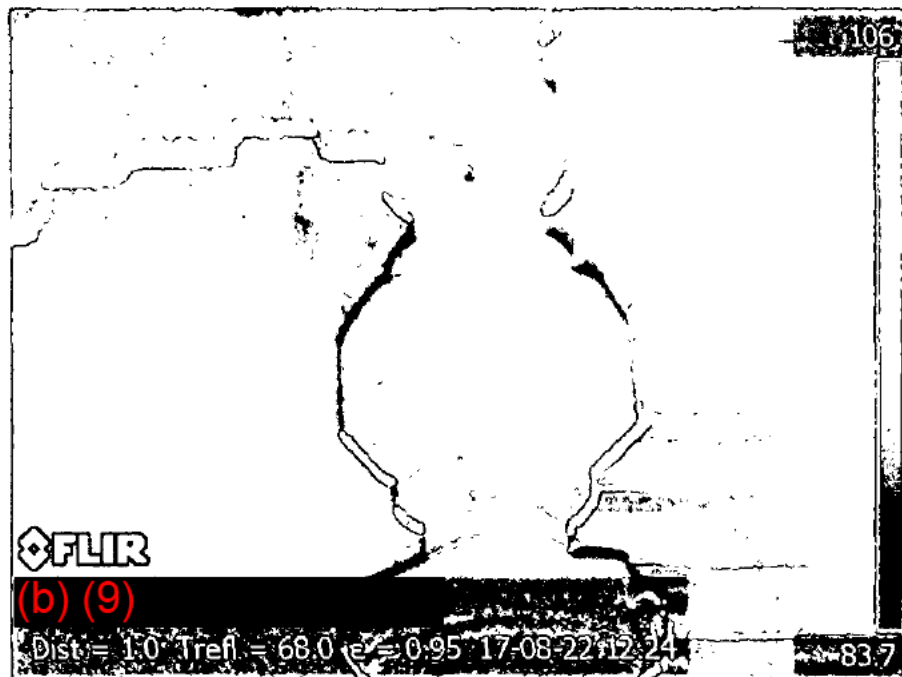
TUNA-20170822-012IR Repaired

Location: 1H GPU Run 2 Union
Date & Time: 8/22/2017 12:39:34 PM
Geolocation: (b) (9)



TUNA-20170822-013IR Leaking

Location: 1H GPU Run 2 Union
Date & Time: 8/22/2017 12:24:36 PM
Geolocation: (b) (9)



TUNA-20170822-013IR Repaired

Location: 1H GPU Run 2 Union
Date & Time: 8/22/2017 12:40:21 PM
Geolocation: (b) (9)



October 25, 2017

Ohio Environmental Protection Agency
Division of Air Pollution Control
Southeast District Office
2195 Front Street
Logan, OH 43138

**Re: Strike Force East, LLC
NSPS Subpart OOOOa Annual Report**

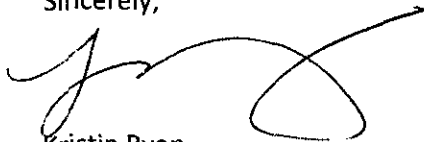
To whom it may concern:

Strike Force East, LLC (SFE) is submitting the attached report for NSPS Subpart OOOOa, as required by 40 CFR §60.5420a(b). This report contains the information specified in §60.5420a(b)(1), (b)(7), and (b)(8).

The report covers the period of August 2, 2016 through August 1, 2017.

Should you have any questions or comments about this submittal, please contact me at (412) 400-6887 or at kristin.ryan@riceenergy.com.

Sincerely,



Kristin Ryan
Emissions Permitting Specialist
Rice Energy, Inc.

Cc: Director, Air and Radiation Division
US Environmental Protection Agency, Region V
77 West Jackson Boulevard
Chicago, IL 60604-3590

Enclosures



Strike Force East LLC
NSPS Subpart OOOOa Annual Report

General Information

Company Name: Strike Force East LLC
Address: 2200 Rice Drive
Canonsburg, PA 15317

Reporting Period	
Start Date	End Date
8/2/2016	8/1/2017

Report Preparer

Name: Kristin Ryan
Title: Emissions Permitting Coordinator
Phone: 412-400-6887
Email: kristin.ryan@riceenergy.com

Certifying Official

Name: Justin Trettel
Title: VP of Midstream Operations and Engineering

Based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete.


Signature

10/25/2017
Date

Rice Drilling B, LLC
NSPS Subpart OOOO's Annual Report
Pneumatic Pump Affected Facilities

Pneumatic Pumps Constructed, Modified, or Reconstructed During the Reporting Period:

Well Site	Street Address	City	County	State	Number of Pumps	No control device or process is available on site	Technically infeasible to capture and route the emissions to the control device or process	Emissions from the pneumatic pump are routed to a control device or process ¹	Records of Deviations Occurring During the Reporting Period ²	Comments
Charlie	(b) (9)	Powhatan Point	Belmont	OH	1	(X)	(X)	(X)		PE certification attached
Duiker		St. Clairsville	Belmont	OH	1		(X)			PE certification attached
Spodgrass		St. Clairsville	Belmont	OH	1		(X)			PE certification attached
Vander		Jacobsburg	Belmont	OH	1		(X)			PE certification attached

Pneumatic Pumps Previously Reported and for Which a Change in the Reported Condition Changed During the Reporting Period:

Well Site	Street Address	City	County	State	Pump ID	New control device and emissions are controlled ¹	New control device and technically infeasible to capture and route the emissions to the control device	Control device or process was removed and new technically infeasible to capture and route the emissions to another control device or process	Records of Deviations Occurring During the Reporting Period ²	Comments
N/A						(X)	(X)	(X)		

¹ If the control device is designed to achieve less than 95 percent emissions reduction, specify the percent emissions reduction; the control device is designed to achieve.

² As specified in 40 CFR 60.5400d(c)(1)(i)(j)

Diaphragm Pumps

LOCATION Charlie 911 ADDRESS (b) (9)

COUNTY Belmont (OH)

NO. OF DIAPHRAGM PUMPS	1
INSTALLED ON	November 2016
APPLICATION	Glycol transfer pump on storage tank
IN USE FOR < 90 DAYS? – Yes / No	Yes – see documentation
ROUTED TO PROCESS – Yes / No	No
CONTROLLED – Yes / No	No
GREENFIELD SITE – Yes / No	No

Comments

Reasons why changes are not technically feasible per 40 CFR 60.5393a(b)(5)(iii):

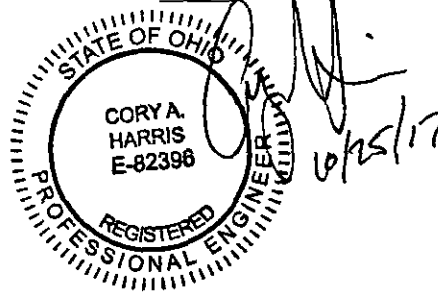
1. No control mechanism on diaphragm pump exhaust line to regen burner
 - a. Varying levels of exhaust gas depending on ΔP , length of stainless tubing run, etc. w/o controls can cause erratic burner operation and can be counterproductive to installed Burner Management Systems (BMS). There is no control mechanism for exhaust gas and this type of installation is not recommended while utilizing the standard *Profire* 2100 BMS.
 - b. Back-pressure on the diaphragm pump exhaust (~8-20 psig) can cause erratic stroke rate as the exhaust is configured to atmospheric conditions.
2. Backflash potential and flame propagation if oxygen is present in stainless steel tubing line
 - a. No flame arrestor is currently installed to prevent backflash. Adding a flame arrestor in this application would result in varying degrees of backpressure continuously being held on the system. Also, a blockage could occur if exhaust system to burner is not properly maintained, resulting in erratic pump operation and excessive wear on internals, pump malfunction, or fire exposure.

"I certify that the assessment of technical infeasibility was prepared under my direction or supervision. I further certify that the assessment was conducted and this report was prepared pursuant to the requirements of §60.5393a(b)(5)(iii). Based on my professional knowledge and experience, and inquiry of personnel involved in the assessment, the certification submitted herein is true, accurate, and complete. I am aware that there are penalties for knowingly submitting false information."

Cody Baker
Facilities Project Engineer
cody.baker@riceenergy.com
Phone: 724-271-7638



Cory Harris, P.E.
Environmental Engineer
cory.harris@riceenergy.com
Phone: 724-271-7718



Diaphragm Pumps

LOCATION Dorsey 911 ADDRESS (b) (9)
COUNTY Belmont (OH)

NO. OF DIAPHRAGM PUMPS	1
INSTALLED ON	March 2017
APPLICATION	Glycol transfer pump on storage tank
IN USE FOR < 90 DAYS? – Yes / No	Yes – see documentation
ROUTED TO PROCESS – Yes / No	No
CONTROLLED – Yes / No	No
GREENFIELD SITE – Yes / No	No

Comments

Reasons why changes are not technically feasible per 40 CFR 60.5393a(b)(5)(iii):

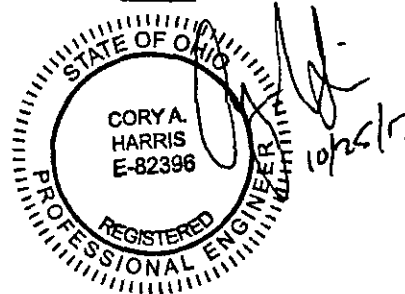
1. No control mechanism on diaphragm pump exhaust line to regen burner
 - a. Varying levels of exhaust gas depending on ΔP , length of stainless tubing run, etc. w/o controls can cause erratic burner operation and can be counterproductive to installed Burner Management Systems (BMS). There is no control mechanism for exhaust gas and this type of installation is not recommended while utilizing the standard *Profire* 2100 BMS.
 - b. Back-pressure on the diaphragm pump exhaust (~8-20 psig) can cause erratic stroke rate as the exhaust is configured to atmospheric conditions.
2. Backflash potential and flame propagation if oxygen is present in stainless steel tubing line
 - a. No flame arrestor is currently installed to prevent backflash. Adding a flame arrestor in this application would result in varying degrees of backpressure continuously being held on the system. Also, a blockage could occur if exhaust system to burner is not properly maintained, resulting in erratic pump operation and excessive wear on internals, pump malfunction, or fire exposure.

"I certify that the assessment of technical infeasibility was prepared under my direction or supervision. I further certify that the assessment was conducted and this report was prepared pursuant to the requirements of §60.5393a(b)(5)(iii). Based on my professional knowledge and experience, and inquiry of personnel involved in the assessment, the certification submitted herein is true, accurate, and complete. I am aware that there are penalties for knowingly submitting false information."

Cody Baker
Facilities Project Engineer
cody.baker@riceenergy.com
Phone: 724-271-7638



Cory Harris, P.E.
Environmental Engineer
cory.harris@riceenergy.com
Phone: 724-271-7718



Diaphragm Pumps

LOCATION Snodgrass911 ADDRESS (b) (9)COUNTY Belmont (OH)

NO. OF DIAPHRAGM PUMPS	1
INSTALLED ON	June 2017
APPLICATION	Glycol transfer pump on storage tank
IN USE FOR < 90 DAYS? – Yes / No	Yes – see documentation
ROUTED TO PROCESS – Yes / No	No
CONTROLLED – Yes / No	No
GREENFIELD SITE – Yes / No	No

Comments

Reasons why changes are not technically feasible per 40 CFR 60.5393a(b)(5)(iii):

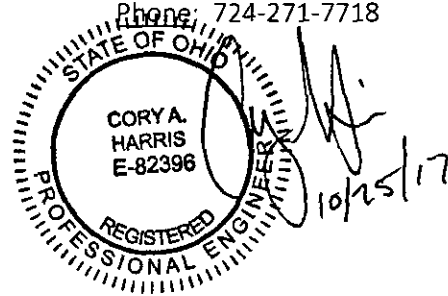
1. No control mechanism on diaphragm pump exhaust line to regen burner
 - a. Varying levels of exhaust gas depending on ΔP , length of stainless tubing run, etc. w/o controls can cause erratic burner operation and can be counterproductive to installed Burner Management Systems (BMS). There is no control mechanism for exhaust gas and this type of installation is not recommended while utilizing the standard *Profire* 2100 BMS.
 - b. Back-pressure on the diaphragm pump exhaust (~8-20 psig) can cause erratic stroke rate as the exhaust is configured to atmospheric conditions.
2. Backflash potential and flame propagation if oxygen is present in stainless steel tubing line
 - a. No flame arrestor is currently installed to prevent backflash. Adding a flame arrestor in this application would result in varying degrees of backpressure continuously being held on the system. Also, a blockage could occur if exhaust system to burner is not properly maintained, resulting in erratic pump operation and excessive wear on internals, pump malfunction, or fire exposure.

"I certify that the assessment of technical infeasibility was prepared under my direction or supervision. I further certify that the assessment was conducted and this report was prepared pursuant to the requirements of §60.5393a(b)(5)(iii). Based on my professional knowledge and experience, and inquiry of personnel involved in the assessment, the certification submitted herein is true, accurate, and complete. I am aware that there are penalties for knowingly submitting false information."

Cody Baker
Facilities Project Engineer
cody.baker@riceenergy.com
Phone: 724-271-7638



Cory Harris, P.E.
Environmental Engineer
cory.harris@riceenergy.com
Phone: 724-271-7718



Diaphragm Pumps

LOCATION Valerie

911 ADDRESS (b) (9)

COUNTY Belmont (OH)

NO. OF DIAPHRAGM PUMPS	1
INSTALLED ON	November 2016
APPLICATION	Glycol transfer pump on storage tank
IN USE FOR < 90 DAYS? – Yes / No	Yes – see documentation
ROUTED TO PROCESS – Yes / No	No
CONTROLLED – Yes / No	No
GREENFIELD SITE – Yes / No	No

Comments

Reasons why changes are not technically feasible per 40 CFR 60.5393a(b)(5)(iii):

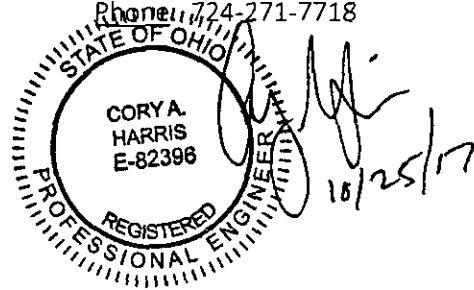
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Phone: 724-271-7718



Strike Force East LLC
NSPS Subpart OOOOa Annual Report

Fugitive Components at Well Sites

Well Site	Street Address	City	County	State	Date(s) of Monitoring Surveys
Charlie	(b) (9)	Powhatan Point	Belmont	OH	9/26/2017
Dorsey		St. Clairsville	Belmont	OH	9/26/2017
Snodgrass		St. Clairsville	Belmont	OH	9/26/2017
Valerie		Jacobsburg	Belmont	OH	9/25/2017

LDAR FLIR Monitoring Form



STATION	CHARLIE				
ON-SITE CONTACT	J.C. JOHANSON				
DATE TESTED	9-26-17	START TIME	12:20 PM	END TIME	12:45 PM
SKY CONDITIONS	CLEAR	AMBIENT TEMP	85°	WIND SPEED	3 MPH

CAMERA MODEL	GFX 320
CAMERA ID NUMBER	SN 74900102
CAMERA CERTIFICATION DATE	2/27/2017
DAILY VERIFICATION DATE	9-26-2017
MAXIMUM VIEWING DISTANCE	25 feet

MONITORING COMPANY	RICE POSEIDON MIDSTREAM
MONITORING TECHNICIAN	(b) (6)
TECHNICIAN CERTIFIED? (Y/N)	YES
TECHNICIAN YEARS OF EXPERIENCE	3 MONTHS

LEAKS DETECTED (Attach additional sheets if necessary)

Location Description	Date Detected	Date Repaired	Camera Model and ID for Rescan	Corrective Action Description <i>For Each Attempt</i>
1				
2				
3				
4				
5				
6				

NUMBER OF COMPONENTS NOT REPAIRED DURING INITIAL SCAN (#)	0
ALL UNREPAIRED COMPONENTS HAVE BEEN TAGGED (✓)	N/A
NUMBER OF DIFFICULT-TO-MONITOR COMPONENTS SCANNED (#)	0
NUMBER OF UNSAFE-TO-MONITOR COMPONENTS SCANNED (#)	0

LDAR FLIR Monitoring Form



AT LEAST ONE STILL IMAGE IS ATTACHED (✓)	✓
ALL STILL IMAGES ARE DATED AND GIS ENABLED (✓)	✓
LEAKER STILL IMAGES ARE ATTACHED (✓ or N/A)	N/A
REPAIR STILL IMAGES ARE ATTACHED (✓ or N/A)	N/A
MONITORING PLAN AND OBSERVATION PATH WERE FOLLOWED* (✓)	✓
DELAY OF REPAIR FORMS COMPLETE (✓ or N/A)	N/A

*If either plan or path were not followed, please include a written description and explanation with this form.

ADDITIONAL OHIO CALCULATION:

$$Leak\% = \frac{ak}{Count_{Est}} \times 100\%$$

LEAKER COUNT	
ESTIMATED COMPONENT COUNT*	
LEAK PERCENT**	

*Provided by Emission Permitting Specialist or Coordinator; estimated using Subpart W population count factors.

** If Leak Percent is greater than 2.0%, increase monitoring frequency to quarterly

Signature:

(b) (6)

Date: 9-26-2017

LDAR Image Title Form

Complete one (1) form per wellpad or compressor station.

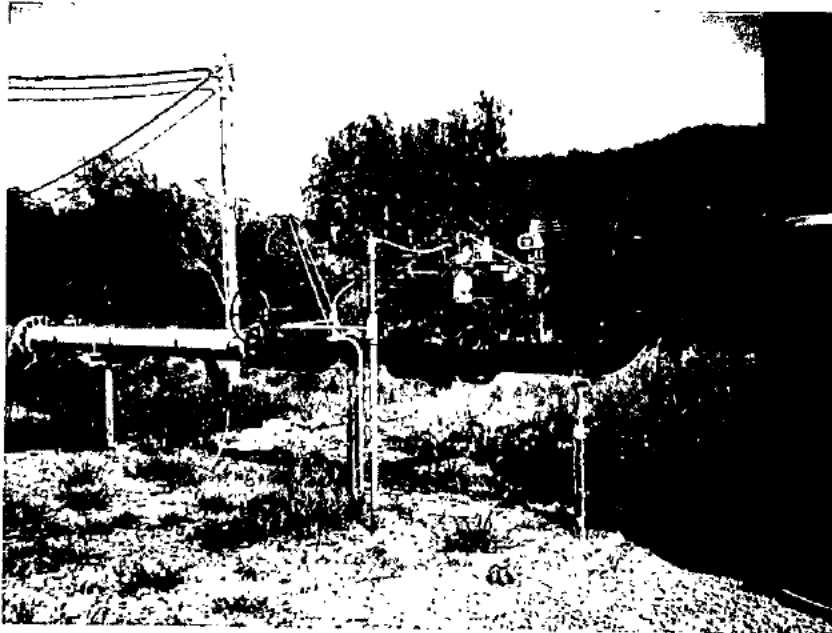


LOCATION	CHARLIE	INITIAL SITE PHOTO	DC-0134
TECHNICIAN	(b) (6)	CAMERA VERIFICATION PHOTO	IR-0135
DATE TESTED	9-26-2017		

SD Card # SANDISK 8GB OHIO #3

Leak	Date	L	R	Digital	IR Picture	IR Movie
1						
2						
3						
4						
5						
6						
7						
8						

Initial Site Photo



Camera Verification Photo



LDAR FLIR Monitoring Form



STATION	DORSEY				
ON-SITE CONTACT	J.C. JOYNSON				
DATE TESTED	9-26-17	START TIME	1:50 PM	END TIME	3:20 PM
SKY CONDITIONS	CLEAR	AMBIENT TEMP	86°	WIND SPEED	3 MPH

CAMERA MODEL	GFX 320
CAMERA ID NUMBER	SN 74900102
CAMERA CERTIFICATION DATE	2/27/2017
DAILY VERIFICATION DATE	9-26-2017
MAXIMUM VIEWING DISTANCE	25 feet

MONITORING COMPANY	RICE POSEIDON MIDSTREAM
MONITORING TECHNICIAN	(b) (6)
TECHNICIAN CERTIFIED? (Y/N)	YES
TECHNICIAN YEARS OF EXPERIENCE	3 MONTH'S

LEAKS DETECTED (Attach additional sheets if necessary)

	Location Description	Date Detected	Date Repaired	Camera Model and ID for Rescan	Corrective Action Description <u>For Each Attempt</u>
1					
2					
3					
4					
5					
6					

NUMBER OF COMPONENTS NOT REPAIRED DURING INITIAL SCAN (#)	N/A
ALL UNREPAIRED COMPONENTS HAVE BEEN TAGGED (✓)	
NUMBER OF DIFFICULT-TO-MONITOR COMPONENTS SCANNED (#)	
NUMBER OF UNSAFE-TO-MONITOR COMPONENTS SCANNED (#)	

LDAR FLIR Monitoring Form



AT LEAST ONE STILL IMAGE IS ATTACHED (✓)	✓
ALL STILL IMAGES ARE DATED AND GIS ENABLED (✓)	✓
LEAKER STILL IMAGES ARE ATTACHED (✓ or N/A)	N/A
REPAIR STILL IMAGES ARE ATTACHED (✓ or N/A)	N/A
MONITORING PLAN AND OBSERVATION PATH WERE FOLLOWED* (✓)	✓
DELAY OF REPAIR FORMS COMPLETE (✓ or N/A)	N/A

*If either plan or path were not followed, please include a written description and explanation with this form.

ADDITIONAL OHIO CALCULATION:

$$Leak\% = \frac{ak}{Count_{Est}} \times 100\%$$

LEAKER COUNT	
ESTIMATED COMPONENT COUNT*	
LEAK PERCENT**	

*Provided by Emission Permitting Specialist or Coordinator; estimated using Subpart W population count factors.

** If Leak Percent is greater than 2.0%, increase monitoring frequency to quarterly.

Signature

(b) (6)

Date: 7-26-2017

LDAR Image Title Form

Complete one (1) form per wellpad or compressor station.

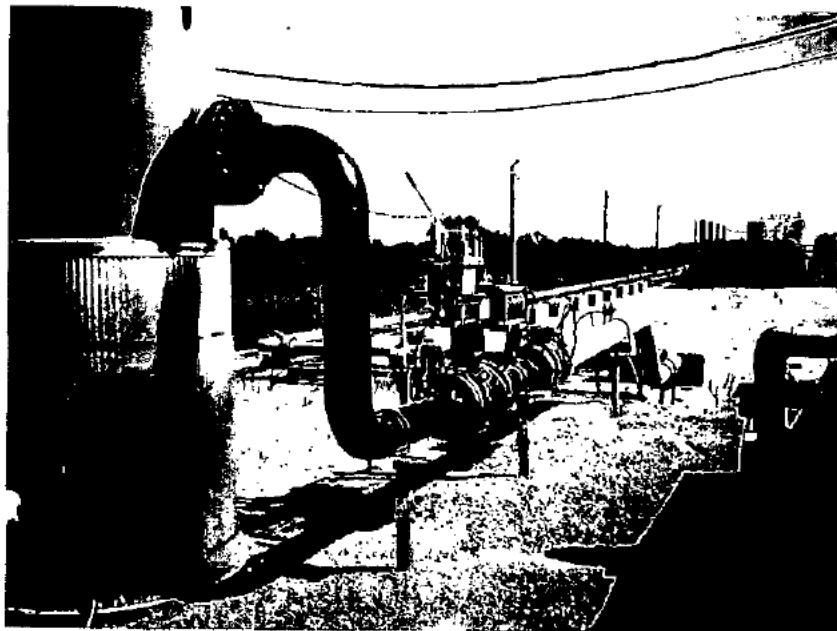


LOCATION	DORSEY	INITIAL SITE PHOTO	DC-0137
TECHNICIAN	(b) (6)	CAMERA VERIFICATION PHOTO	IR-0136
DATE TESTED	9-26-2017		

SD Card # SANDISK 8GB OHIO[#]3

Leak	Date	L	R	Digital	IR Picture	IR Movie
1						
2						
3						
4						
5						
6						
7						
8						

Initial Site Photo



Camera Verification Photo



LDAR FLIR Monitoring Form



STATION	SNODGRASS				
ON-SITE CONTACT	J.C. JOYNSON				
DATE TESTED	9-26-17	START TIME	2:40 ^{PM}	END TIME	3:05 ^{PM}
SKY CONDITIONS	CLEAR	AMBIENT TEMP	86	WIND SPEED	4 MPH
CAMERA MODEL	GFX 320				
CAMERA ID NUMBER	SN 74900102				
CAMERA CERTIFICATION DATE	2/27/2017				
DAILY VERIFICATION DATE	9-26-2017				
MAXIMUM VIEWING DISTANCE	25 feet				
MONITORING COMPANY	RICE POSEIDON MIDSTREAM				
MONITORING TECHNICIAN	(b) (6)				
TECHNICIAN CERTIFIED? (Y/N)	YES				
TECHNICIAN YEARS OF EXPERIENCE	3 MONTHS				

LEAKS DETECTED (Attach additional sheets if necessary)

Location Description	Date Detected	Date Repaired	Camera Model and ID for Rescan	Corrective Action Description <i>For Each Attempt</i>
1				
2				
3				
4				
5				
6				

NUMBER OF COMPONENTS NOT REPAIRED DURING INITIAL SCAN (#)	0 N/A 0
ALL UNREPAIRED COMPONENTS HAVE BEEN TAGGED (✓)	
NUMBER OF DIFFICULT-TO-MONITOR COMPONENTS SCANNED (#)	
NUMBER OF UNSAFE-TO-MONITOR COMPONENTS SCANNED (#)	

LDAR FLIR Monitoring Form



AT LEAST ONE STILL IMAGE IS ATTACHED (✓)	✓
ALL STILL IMAGES ARE DATED AND GIS ENABLED (✓)	✓
LEAKER STILL IMAGES ARE ATTACHED (✓ or N/A)	N/A
REPAIR STILL IMAGES ARE ATTACHED (✓ or N/A)	N/A
MONITORING PLAN AND OBSERVATION PATH WERE FOLLOWED* (✓)	✓
DELAY OF REPAIR FORMS COMPLETE (✓ or N/A)	N/A

*If either plan or path were not followed, please include a written description and explanation with this form.

ADDITIONAL OHIO CALCULATION:

$$Leak\% = \frac{ak}{Count_{Est}} \times 100\%$$

LEAKER COUNT	
ESTIMATED COMPONENT COUNT*	
LEAK PERCENT**	

*Provided by Emission Permitting Specialist or Coordinator; estimated using Subpart W population count factors

** If Leak Percent is greater than 2.0%, increase monitoring frequency to quarterly.

Signature

(b) (6)

Date:

9-26-2017

LDAR Image Title Form



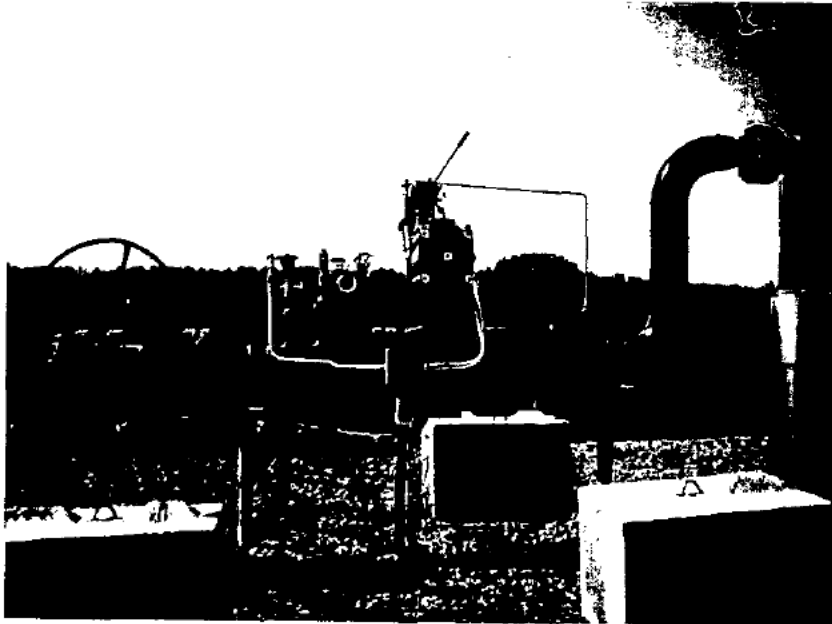
Complete one (1) form per wellpad or compressor station.

LOCATION	SNOOGRASS	INITIAL SITE PHOTO	DC_0139
TECHNICIAN	(b) (6)	CAMERA VERIFICATION PHOTO	IR_0138
DATE TESTED	9-26-2017		

SD Card # SANDISK 8GB OHIO#3

Leak	Date	L	R	Digital	IR Picture	IR Movie
1						
2						
3						
4						
5						
6						
7						
8						

Initial Site Photo



Camera Verification Photo



LDAR FLIR Monitoring Form

RICE ENERGY

STATION	VALERIE				
ON-SITE CONTACT	SHANE MURRAY				
DATE TESTED	9-25-17	START TIME	12:45 PM	END TIME	1:15 PM
SKY CONDITIONS	CLEAR	AMBIENT TEMP	84°	WIND SPEED	3 MPH
CAMERA MODEL	GFX 320				
CAMERA ID NUMBER	SN 74900102				
CAMERA CERTIFICATION DATE	2/27/2017				
DAILY VERIFICATION DATE	9-25-2017				
MAXIMUM VIEWING DISTANCE	25 feet				
MONITORING COMPANY	RICE POSEIDON MIDSTREAM				
MONITORING TECHNICIAN	(b) (6)				
TECHNICIAN CERTIFIED? (Y/N)	YES				
TECHNICIAN YEARS OF EXPERIENCE	3 MONTHS				

LEAKS DETECTED (Attach additional sheets if necessary)

Location Description	Date Detected	Date Repaired	Camera Model and ID for Rescan	Corrective Action Description For Each Attempt
1 FILTER SUPPLY LINE	9-25-17	9-25-17	GFX 320 SN 74900102	TIGHTENED FITTINGS
2				
3				
4				
5				
6				

NUMBER OF COMPONENTS NOT REPAIRED DURING INITIAL SCAN (#)	0
ALL UNREPAIRED COMPONENTS HAVE BEEN TAGGED (✓)	N/A
NUMBER OF DIFFICULT-TO-MONITOR COMPONENTS SCANNED (#)	0
NUMBER OF UNSAFE-TO-MONITOR COMPONENTS SCANNED (#)	0

LDAR FLIR Monitoring Form



AT LEAST ONE STILL IMAGE IS ATTACHED (✓)	✓
ALL STILL IMAGES ARE DATED AND GIS ENABLED (✓)	✓
LEAKER STILL IMAGES ARE ATTACHED (✓ or N/A)	✓
REPAIR STILL IMAGES ARE ATTACHED (✓ or N/A)	✓
MONITORING PLAN AND OBSERVATION PATH WERE FOLLOWED* (✓)	✓
DELAY OF REPAIR FORMS COMPLETE (✓ or N/A)	N/A

*If either plan or path were not followed, please include a written description and explanation with this form.

ADDITIONAL OHIO CALCULATION:

$$Leak\% = \frac{ak}{Count_{Est}} \times 100\%$$

LEAKER COUNT	
ESTIMATED COMPONENT COUNT*	
LEAK PERCENT**	

*Provided by Emission Permitting Specialist or Coordinator; estimated using Subpart W population count factors.

** If Leak Percent is greater than 2.0%, increase monitoring frequency to quarterly

Signature

(b) (6)

Date: 9-25-2017

LDAR Image Title Form

Complete one (1) form per wellpad or compressor station.

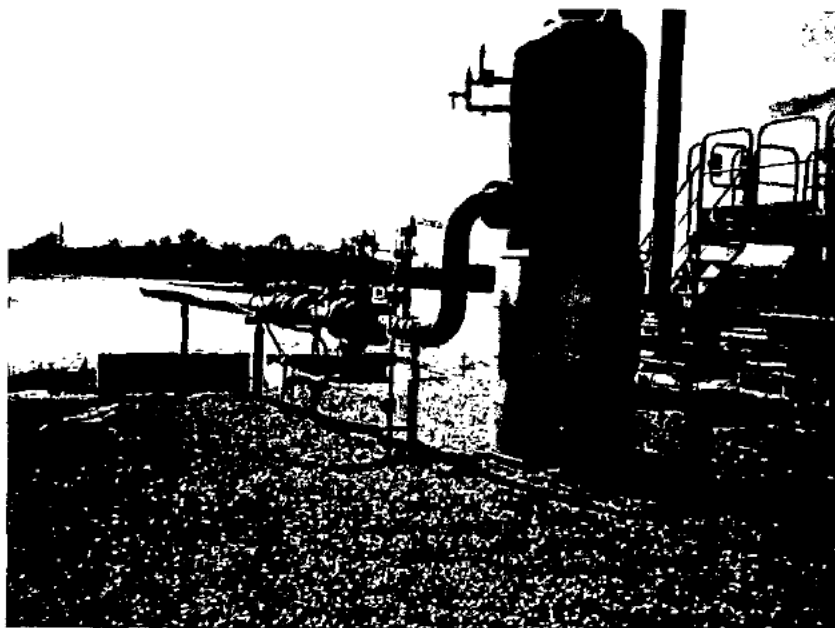


LOCATION	VALERIE	INITIAL SITE PHOTO	DC_0096
TECHNICIAN	(b) (6)	CAMERA VERIFICATION PHOTO	IR_0097
DATE TESTED	9-25-2017		

SD Card # SANDISK 8GB OHIO #2

Leak	Date	L	R	Digital	IR Picture	IR Movie
1	9-25-2017	L		DC_0099	IR_0098	MOV_0100
	9-25-2017	R		DC_0102	IR_0101	MOV_0103
2						
3						
4						
5						
6						
7						
8						

Initial Site Photo



Camera Verification Photo



Filter Separator Supply Line Leak



Filter Separator Supply Line Repair



October 25, 2017

Ohio Environmental Protection Agency
Division of Air Pollution Control
Southeast District Office
2195 Front Street
Logan, OH 43138

**Re: Strike Force South, LLC
NSPS Subpart OOOOa Annual Report**

To whom it may concern:

Strike Force South, LLC (SFS) is submitting the attached report for NSPS Subpart OOOOa, as required by 40 CFR §60.5420a(b). This report contains the information specified in §60.5420a(b)(1), (b)(7), and (b)(8).

The report covers the period of August 2, 2016 through August 1, 2017.

Should you have any questions or comments about this submittal, please contact me at (412) 400-6887 or at kristin.ryan@riceenergy.com.

Sincerely,



Kristin Ryan
Emissions Permitting Specialist
Rice Energy, Inc.

Cc: Director, Air and Radiation Division
US Environmental Protection Agency, Region V
77 West Jackson Boulevard
Chicago, IL 60604-3590

Enclosures



Strike Force South LLC
NSPS Subpart OOOOa Annual Report

General Information

Company Name: Strike Force South LLC
Address: 2200 Rice Drive
Canonsburg, PA 15317

Reporting Period	
Start Date	End Date
8/2/2016	8/1/2017

Report Preparer

Name: Kristin Ryan
Title: Emissions Permitting Coordinator
Phone: 412-400-6887
Email: kristin.ryan@riceenergy.com

Certifying Official

Name: Justin Trettel
Title: VP of Midstream Operations and Engineering

Based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete.


Signature

10/25/2017
Date

Rice Drilling B, LLC
NSPS Subpart OOOOa Annual Report

Pneumatic Pump Affected Facilities

Pneumatic Pumps Constructed, Modified, or Reconstructed During the Reporting Period:

Well Site	Street Address	City	County	State	Number of Pumps	No control device or process is available on site (X)	Technically Infeasible to capture and route the emissions to the control device or process (X)	Emissions from the pneumatic pump are routed to a control device or process ² (X)	Records of Deviations Occurring During the Reporting Period ³	Comments
Switz 5	(b) (9)	Bealsville	Belmont	OH	1		X			PE certification attached
Switz 16		Clarington	Belmont	OH	1		X			PE certification attached
Donato		Graysville	Belmont	OH	1		X			PE certification attached
Gary Green		Graysville	Belmont	OH	1		X			PE certification attached
Jacobs		Woodsfield	Belmont	OH	1		X			PE certification attached
Rick Martel		Graysville	Belmont	OH	1		X			PE certification attached
Roger W. Brown		Woodsfield	Belmont	OH	1		X			PE certification attached
Tito Santana		Graysville	Belmont	OH	1		X			PE certification attached

Pneumatic Pumps Previously Reported and For Which a Change in the Reported Condition Changed During the Reporting Period:

Well Site	Street Address	City	County	State	Pump ID	New control device and emissions are controlled ¹ (X)	New control device and technically infeasible to capture and route the emissions to the control device (X)	Control device or process was removed and new no control/process is available on site (X)	Control device or process was removed and now technically infeasible to capture and route the emissions to another control device or process (X)	Records of Deviations Occurring During the Reporting Period ³	Comments
N/A											

¹ If the control device is designed to achieve less than 95 percent emissions reduction, specify the percent emissions reductions the control device is designed to achieve.

² As specified in 40 CFR 60.5420a(c)(16)(ii).

Diaphragm Pumps

LOCATION Switz 5 911 ADDRESS (b) (9)

COUNTY Belmont (OH)

NO. OF DIAPHRAGM PUMPS	1
INSTALLED ON	July 2017
APPLICATION	Glycol transfer pump on storage tank
IN USE FOR < 90 DAYS? – Yes / No	Yes – see documentation
ROUTED TO PROCESS – Yes / No	No
CONTROLLED – Yes / No	No
GREENFIELD SITE – Yes / No	No

Comments

Reasons why changes are not technically feasible per 40 CFR 60.5393a(b)(5)(iii):

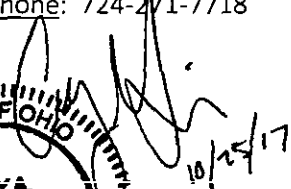
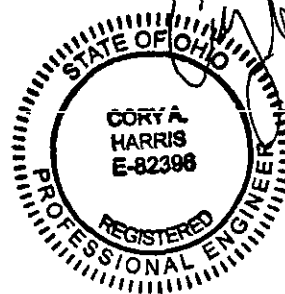
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Phone: 724-271-7638



Cory Harris, P.E.
Environmental Engineer
cory.harris@riceenergy.com
Phone: 724-271-7718


10/25/17



2200 Rice Drive
Canonsburg, PA 15317

40 CFR Subpart 0000a Compliance Plan – Midstream

Diaphragm Pumps

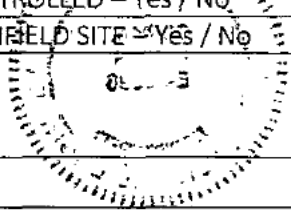
LOCATION Switz 16

911 ADDRESS (b) (9)

COUNTY Belmont (OH)

NO. OF DIAPHRAGM PUMPS	1
INSTALLED ON	July 2017
APPLICATION	Glycol transfer pump on storage tank
IN USE FOR < 90 DAYS? – Yes / No	Yes – see documentation
ROUTED TO PROCESS – Yes / No	No
CONTROLLED – Yes / No	No
GREENFIELD SITE – Yes / No	No

Comments



Reasons why changes are not technically feasible per 40 CFR 60.5393a(b)(5)(iii):

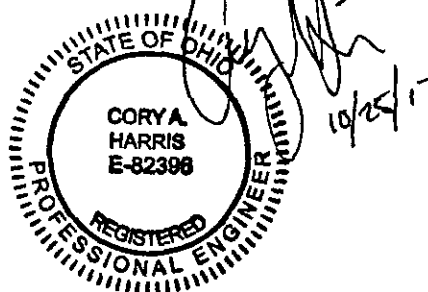
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cody.baker@riceenergy.com
Phone: 724-271-7638



Cory Harris, P.E.
Environmental Engineer
cory.harris@riceenergy.com
Phone: 724-271-7718



Diaphragm Pumps

LOCATION Donato 911 ADDRESS (b) (9)COUNTY Belmont (OH)

NO. OF DIAPHRAGM PUMPS	1
INSTALLED ON	April 2017
APPLICATION	Glycol transfer pump on storage tank
IN USE FOR < 90 DAYS? – Yes / No	Yes – see documentation
ROUTED TO PROCESS – Yes / No	No
CONTROLLED – Yes / No	No
GREENFIELD SITE – Yes / No	No

Comments

Reasons why changes are not technically feasible per 40 CFR 60.5393a(b)(5)(iii):

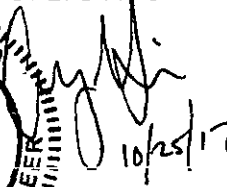
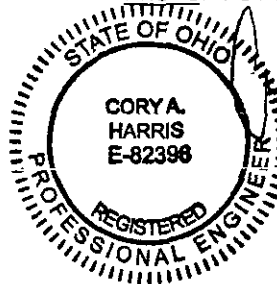
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 - a. Varying levels of exhaust gas depending on ΔP , length of stainless tubing run, etc. w/o controls can cause erratic burner operation and can be counterproductive to installed Burner Management Systems (BMS). There is no control mechanism for exhaust gas and this type of installation is not recommended while utilizing the standard *Profire* 2100 BMS.
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2. Backflash potential and flame propagation if oxygen is present in stainless steel tubing line
 - a. No flame arrestor is currently installed to prevent backflash. Adding a flame arrestor in this application would result in varying degrees of backpressure continuously being held on the system. Also, a blockage could occur if exhaust system to burner is not properly maintained, resulting in erratic pump operation and excessive wear on internals, pump malfunction, or fire exposure.

"I certify that the assessment of technical infeasibility was prepared under my direction or supervision. I further certify that the assessment was conducted and this report was prepared pursuant to the requirements of §60.5393a(b)(5)(iii). Based on my professional knowledge and experience, and inquiry of personnel involved in the assessment, the certification submitted herein is true, accurate, and complete. I am aware that there are penalties for knowingly submitting false information."

Cody Baker
Facilities Project Engineer
cody.baker@riceenergy.com
Phone: 724-271-7638



Cory Harris, P.E.
Environmental Engineer
cory.harris@riceenergy.com
Phone: 724-271-7718



10/25/17

Diaphragm PumpsLOCATION Gary Green911 ADDRESS (b) (9)COUNTY Belmont (OH)

NO. OF DIAPHRAGM PUMPS	1
INSTALLED ON	May 2017
APPLICATION	Glycol transfer pump on storage tank
IN USE FOR < 90 DAYS? – Yes / No	Yes – see documentation
ROUTED TO PROCESS – Yes / No	No
CONTROLLED – Yes / No	No
GREENFIELD SITE – Yes / No	No

Comments

Reasons why changes are not technically feasible per 40 CFR 60.5393a(b)(5)(iii):

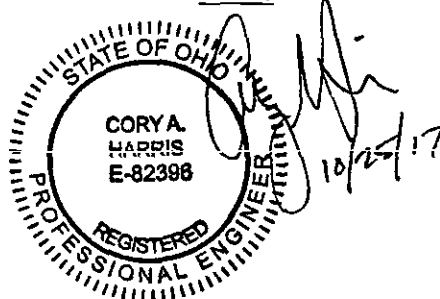
1. No control mechanism on diaphragm pump exhaust line to regen burner
 - a. Varying levels of exhaust gas depending on ΔP , length of stainless tubing run, etc. w/o controls can cause erratic burner operation and can be counterproductive to installed Burner Management Systems (BMS). There is no control mechanism for exhaust gas and this type of installation is not recommended while utilizing the standard *Profire* 2100 BMS.
 - b. Back-pressure on the diaphragm pump exhaust (~8-20 psig) can cause erratic stroke rate as the exhaust is configured to atmospheric conditions.
2. Backflash potential and flame propagation if oxygen is present in stainless steel tubing line
 - a. No flame arrestor is currently installed to prevent backflash. Adding a flame arrestor in this application would result in varying degrees of backpressure continuously being held on the system. Also, a blockage could occur if exhaust system to burner is not properly maintained, resulting in erratic pump operation and excessive wear on internals, pump malfunction, or fire exposure.

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Diaphragm Pumps

LOCATION Jacobs911 ADDRESS (b) (9)COUNTY Belmont (OH)

NO. OF DIAPHRAGM PUMPS	1
INSTALLED ON	April 2017
APPLICATION	Glycol transfer pump on storage tank
IN USE FOR < 90 DAYS? – Yes / No	Yes – see documentation
ROUTED TO PROCESS – Yes / No	No
CONTROLLED – Yes / No	No
GREENFIELD SITE – Yes / No	No

Comments

Reasons why changes are not technically feasible per 40 CFR 60.5393a(b)(5)(iii):

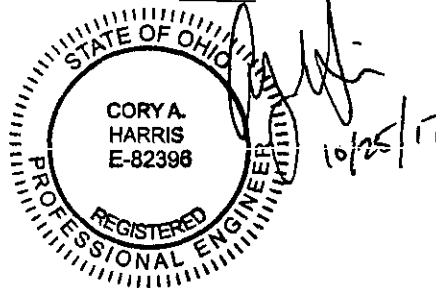
1. No control mechanism on diaphragm pump exhaust line to regen burner
 - a. Varying levels of exhaust gas depending on ΔP , length of stainless tubing run, etc. w/o controls can cause erratic burner operation and can be counterproductive to installed Burner Management Systems (BMS). There is no control mechanism for exhaust gas and this type of installation is not recommended while utilizing the standard *Profire* 2100 BMS.
 - b. Back-pressure on the diaphragm pump exhaust (~8-20 psig) can cause erratic stroke rate as the exhaust is configured to atmospheric conditions.
2. Backflash potential and flame propagation if oxygen is present in stainless steel tubing line
 - a. No flame arrestor is currently installed to prevent backflash. Adding a flame arrestor in this application would result in varying degrees of backpressure continuously being held on the system. Also, a blockage could occur if exhaust system to burner is not properly maintained, resulting in erratic pump operation and excessive wear on internals, pump malfunction, or fire exposure.

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Diaphragm Pumps

LOCATION Roger W. Brown 911 ADDRESS (b) (9)COUNTY Belmont (OH)

NO. OF DIAPHRAGM PUMPS	1
INSTALLED ON	April 2017
APPLICATION	Glycol transfer pump on storage tank
IN USE FOR < 90 DAYS? – Yes / No	Yes – see documentation
ROUTED TO PROCESS – Yes / No	No
CONTROLLED – Yes / No	No
GREENFIELD SITE – Yes / No	No

Comments

Reasons why changes are not technically feasible per 40 CFR 60.5393a(b)(5)(iii):

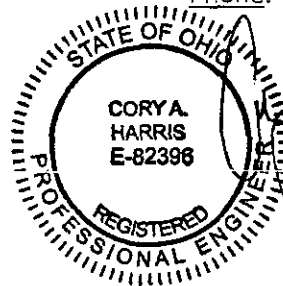
1. No control mechanism on diaphragm pump exhaust line to regen burner
 - a. Varying levels of exhaust gas depending on ΔP , length of stainless tubing run, etc. w/o controls can cause erratic burner operation and can be counterproductive to installed Burner Management Systems (BMS). There is no control mechanism for exhaust gas and this type of installation is not recommended while utilizing the standard *Profire* 2100 BMS.
 - b. Back-pressure on the diaphragm pump exhaust (~8-20 psig) can cause erratic stroke rate as the exhaust is configured to atmospheric conditions.
2. Backflash potential and flame propagation if oxygen is present in stainless steel tubing line
 - a. No flame arrestor is currently installed to prevent backflash. Adding a flame arrestor in this application would result in varying degrees of backpressure continuously being held on the system. Also, a blockage could occur if exhaust system to burner is not properly maintained, resulting in erratic pump operation and excessive wear on internals, pump malfunction, or fire exposure.

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Diaphragm Pumps

LOCATION Rick Martel 911 ADDRESS (b) (9)COUNTY Belmont (OH)

NO. OF DIAPHRAGM PUMPS	1
INSTALLED ON	July 2016
APPLICATION	Glycol transfer pump on storage tank
IN USE FOR < 90 DAYS? – Yes / No	Yes – see documentation
ROUTED TO PROCESS – Yes / No	No
CONTROLLED – Yes / No	No
GREENFIELD SITE – Yes / No	No

Comments

Reasons why changes are not technically feasible per 40 CFR 60.5393a(b)(5)(iii):

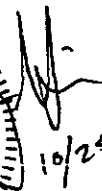
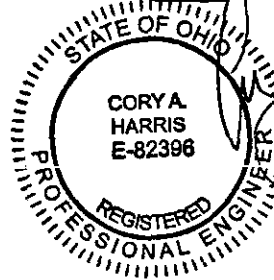
1. No control mechanism on diaphragm pump exhaust line to regen burner
 - a. Varying levels of exhaust gas depending on ΔP , length of stainless tubing run, etc. w/o controls can cause erratic burner operation and can be counterproductive to installed Burner Management Systems (BMS). There is no control mechanism for exhaust gas and this type of installation is not recommended while utilizing the standard *Profire* 2100 BMS.
 - b. Back-pressure on the diaphragm pump exhaust (~8-20 psig) can cause erratic stroke rate as the exhaust is configured to atmospheric conditions.
2. Backflash potential and flame propagation if oxygen is present in stainless steel tubing line
 - a. No flame arrestor is currently installed to prevent backflash. Adding a flame arrestor in this application would result in varying degrees of backpressure continuously being held on the system. Also, a blockage could occur if exhaust system to burner is not properly maintained, resulting in erratic pump operation and excessive wear on internals, pump malfunction, or fire exposure.

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10/25/17

Diaphragm Pumps

LOCATION Tito Santana911 ADDRESS (b) (9)COUNTY Belmont (OH)

NO. OF DIAPHRAGM PUMPS	1
INSTALLED ON	February 2016
APPLICATION	Glycol transfer pump on storage tank
IN USE FOR < 90 DAYS? – Yes / No	Yes – see documentation
ROUTED TO PROCESS – Yes / No	No
CONTROLLED – Yes / No	No
GREENFIELD SITE – Yes / No	No

Comments

Reasons why changes are not technically feasible per 40 CFR 60.5393a(b)(5)(iii):


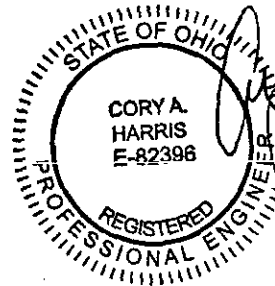
1. No control mechanism on diaphragm pump exhaust line to regen burner
 - a. Varying levels of exhaust gas depending on ΔP , length of stainless tubing run, etc. w/o controls can cause erratic burner operation and can be counterproductive to installed Burner Management Systems (BMS). There is no control mechanism for exhaust gas and this type of installation is not recommended while utilizing the standard *Profire* 2100 BMS.
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10/25/17

Strike Force South LLC
NSPS Subpart OOOOa Annual Report

Fugitive Components at Well Sites

Well Site	Street Address	City	County	State	Date(s) of Monitoring Surveys
Switz 5	(b) (9)	Beallsville	Belmont	OH	9/25/2017
Switz 16		Clarington	Belmont	OH	9/25/2017
Donato		Graysville	Belmont	OH	9/27/2017
Gary Green		Graysville	Belmont	OH	9/27/2017
Jacobs		Woodsfield	Belmont	OH	9/27/2017
Rick Martel		Graysville	Belmont	OH	9/27/2017
Roger W. Brown		Woodsfield	Belmont	OH	9/27/2017
Tito Santana		Graysville	Belmont	OH	9/27/2017

LDAR FLIR Monitoring Form



STATION	SWITZ # 5				
ON-SITE CONTACT	SHANE MURRAY				
DATE TESTED	9-25-17	START TIME	11:00 AM	END TIME	11:25 AM
SKY CONDITIONS	CLEAR	AMBIENT TEMP	75°	WIND SPEED	2 MPH
CAMERA MODEL	GFX 320				
CAMERA ID NUMBER	SN 74900102				
CAMERA CERTIFICATION DATE	2/27/2017				
DAILY VERIFICATION DATE	9-25-17				
MAXIMUM VIEWING DISTANCE	25 feet				
MONITORING COMPANY	RICE POSEIDON MIDSTREAM				
MONITORING TECHNICIAN	(b) (9)				
TECHNICIAN CERTIFIED? (Y/N)	YES				
TECHNICIAN YEARS OF EXPERIENCE	3 MONTHS				

LEAKS DETECTED (Attach additional sheets if necessary)

	Location Description	Date Detected	Date Repaired	Camera Model and ID for Rescan	Corrective Action Description <u>For Each Attempt</u>
1					
2					
3					
4					
5					
6					

NUMBER OF COMPONENTS NOT REPAIRED DURING INITIAL SCAN (#)	0
ALL UNREPAIRED COMPONENTS HAVE BEEN TAGGED (✓)	N/A
NUMBER OF DIFFICULT-TO-MONITOR COMPONENTS SCANNED (#)	0
NUMBER OF UNSAFE-TO-MONITOR COMPONENTS SCANNED (#)	0

LDAR FLIR Monitoring Form



AT LEAST ONE STILL IMAGE IS ATTACHED (✓)	✓
ALL STILL IMAGES ARE DATED AND GIS ENABLED (✓)	✓
LEAKER STILL IMAGES ARE ATTACHED (✓ or N/A)	N/A
REPAIR STILL IMAGES ARE ATTACHED (✓ or N/A)	N/A
MONITORING PLAN AND OBSERVATION PATH WERE FOLLOWED* (✓)	✓
DELAY OF REPAIR FORMS COMPLETE (✓ or N/A)	N/A

*If either plan or path were not followed, please include a written description and explanation with this form.

ADDITIONAL OHIO CALCULATION:

$$Leak\% = \frac{ak}{Count_{Est}} \times 100\%$$

LEAKER COUNT	
ESTIMATED COMPONENT COUNT*	
LEAK PERCENT**	

*Provided by Emission Permitting Specialist or Coordinator; estimated using Subpart W population count factors.

** If Leak Percent is greater than 2.0%, increase monitoring frequency to quarterly.

Signature

(b) (6)

Date:

9-25-2017

LDAR Image Title Form

Complete one (1) form per wellpad or compressor station.



LOCATION	SW1T2 #5	INITIAL SITE PHOTO	DC_0089
TECHNICIAN	(b) (6)	CAMERA VERIFICATION PHOTO	IR_0090
DATE TESTED	9-25-2017		

SD Card # SANDISK 8GB OHIO #1

Leak	Date	L	R	Digital	IR Picture	IR Movie
1						
2						
3						
4						
5						
6						
7						
8						

Initial Site Photo



Camera Verification Photo



LDAR FLIR Monitoring Form



STATION	SWITZ #16				
ON-SITE CONTACT	SHANE MURRAY				
DATE TESTED	9-25-17	START TIME	11:35 AM	END TIME	12:05 PM
SKY CONDITIONS	CLEAR	AMBIENT TEMP	76°	WIND SPEED	3 MPH

CAMERA MODEL	GFX 320
CAMERA ID NUMBER	SN 74900102
CAMERA CERTIFICATION DATE	2/27/2017
DAILY VERIFICATION DATE	9-25-2017
MAXIMUM VIEWING DISTANCE	25 feet

MONITORING COMPANY	RICE POSEIDON MIDSTREAM
MONITORING TECHNICIAN	(b) (6)
TECHNICIAN CERTIFIED? (Y/N)	YES
TECHNICIAN YEARS OF EXPERIENCE	3 MONTHS

LEAKS DETECTED (Attach additional sheets if necessary)

Location Description	Date Detected	Date Repaired	Camera Model and ID for Rescan	Corrective Action Description <u>For Each</u> Attempt
1 BACK PRESSURE REGULATOR ON FLASH SEP.	9-25-17	9-26-17	GFX 320 SN 74900102	CLEANED OUT BACK PRESSURE REGULATOR RE-ADJUSTED
2				
3				
4				
5				
6				

NUMBER OF COMPONENTS NOT REPAIRED DURING INITIAL SCAN (#)	1
ALL UNREPAIRED COMPONENTS HAVE BEEN TAGGED (✓)	✓
NUMBER OF DIFFICULT-TO-MONITOR COMPONENTS SCANNED (#)	0
NUMBER OF UNSAFE-TO-MONITOR COMPONENTS SCANNED (#)	0

LDAR FLIR Monitoring Form



AT LEAST ONE STILL IMAGE IS ATTACHED (✓)	✓
ALL STILL IMAGES ARE DATED AND GIS ENABLED (✓)	✓
LEAKER STILL IMAGES ARE ATTACHED (✓ or N/A)	✓
REPAIR STILL IMAGES ARE ATTACHED (✓ or N/A)	✓
MONITORING PLAN AND OBSERVATION PATH WERE FOLLOWED* (✓)	✓
DELAY OF REPAIR FORMS COMPLETE (✓ or N/A)	N/A

*If either plan or path were not followed, please include a written description and explanation with this form.

ADDITIONAL OHIO CALCULATION:

$$Leak\% = \frac{ak}{Count_{Est}} \times 100\%$$

LEAKER COUNT	
ESTIMATED COMPONENT COUNT*	
LEAK PERCENT**	

*Provided by Emission Permitting Specialist or Coordinator; estimated using Subpart W population count factors.

** If Leak Percent is greater than 2.0%, increase monitoring frequency to quarterly.

Signature **(b) (6)** Date: 9-26-2017

LDAR Image Title Form

Complete one (1) form per wellpad or compressor station.

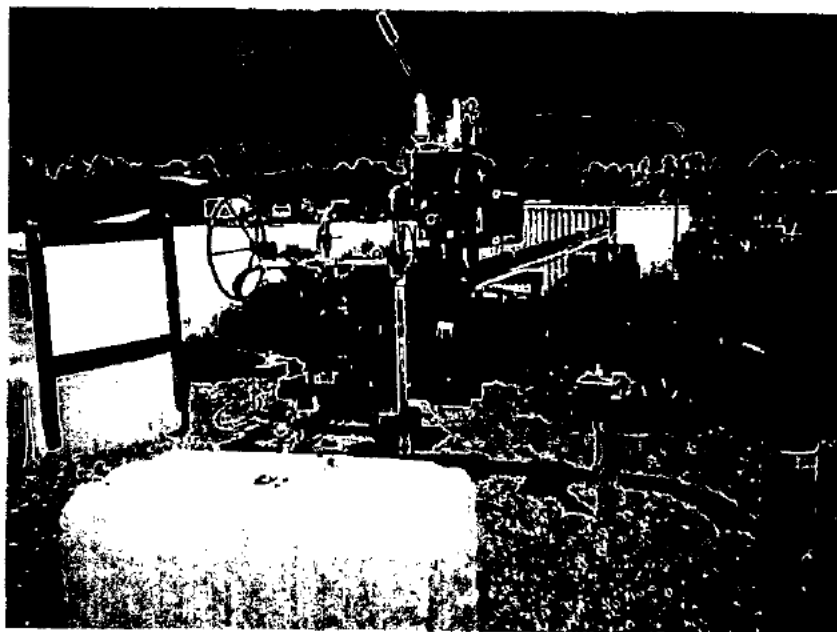


LOCATION	SU1TZ #16	INITIAL SITE PHOTO	DC_0091
TECHNICIAN	(b) (6)	CAMERA VERIFICATION PHOTO	IR_0092
DATE TESTED	9-25-2017		

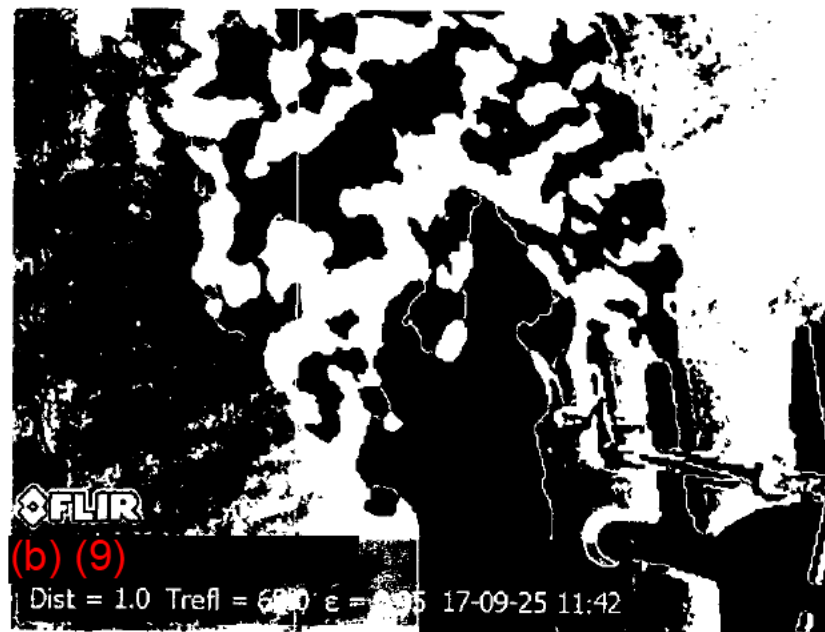
SD Card # SANDISK 8GB OHIO #1

Leak	Date	L	R	Digital	IR Picture	IR Movie
1	9-25-2017	L		DC_0093	IR_0094	MOV_0095
	9-26-2017	R		DC_0116	IR_0117	MOV_0118
2						
3						
4						
5						
6						
7						
8						

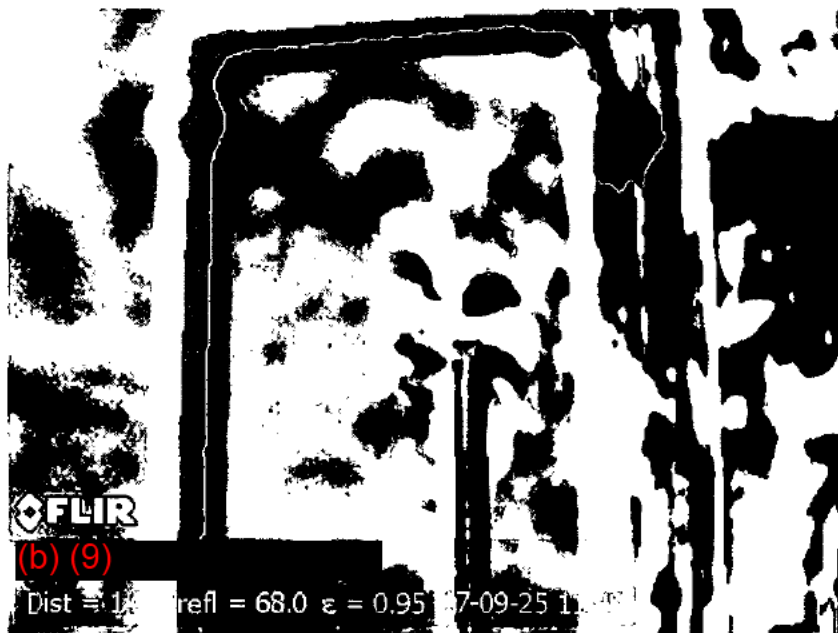
Initial Site Photo



Camera Verification Photo



Flash Separator Back Pressure Regulator Leak



Flash Separator Back Pressure Regulator Repair



LDAR FLIR Monitoring Form



STATION	DONATO				
ON-SITE CONTACT	BRIAN LEMASTERS				
DATE TESTED	9-27-17	START TIME	10:30 ^{AM}	END TIME	
SKY CONDITIONS	CLEAR	AMBIENT TEMP	81°	WIND SPEED	3 MPH

CAMERA MODEL	GFX 320
CAMERA ID NUMBER	SN 74900102
CAMERA CERTIFICATION DATE	2/27/2017
DAILY VERIFICATION DATE	9-27-2017
MAXIMUM VIEWING DISTANCE	25 feet

MONITORING COMPANY	RICE POSEIDON MIDSTREAM
MONITORING TECHNICIAN	(b) (6)
TECHNICIAN CERTIFIED? (Y/N)	YES
TECHNICIAN YEARS OF EXPERIENCE	3 MONTHS

LEAKS DETECTED (Attach additional sheets if necessary)

Location Description	Date Detected	Date Repaired	Camera Model and ID for Rescan	Corrective Action Description <u>For Each Attempt</u>
1				
2				
3				
4				
5				
6				

NUMBER OF COMPONENTS NOT REPAIRED DURING INITIAL SCAN (#)	0
ALL UNREPAIRED COMPONENTS HAVE BEEN TAGGED (✓)	N/A
NUMBER OF DIFFICULT-TO-MONITOR COMPONENTS SCANNED (#)	0
NUMBER OF UNSAFE-TO-MONITOR COMPONENTS SCANNED (#)	0

LDAR FLIR Monitoring Form



AT LEAST ONE STILL IMAGE IS ATTACHED (✓)	✓
ALL STILL IMAGES ARE DATED AND GIS ENABLED (✓)	✓
LEAKER STILL IMAGES ARE ATTACHED (✓ or N/A)	N/A
REPAIR STILL IMAGES ARE ATTACHED (✓ or N/A)	N/A
MONITORING PLAN AND OBSERVATION PATH WERE FOLLOWED* (✓)	✓
DELAY OF REPAIR FORMS COMPLETE (✓ or N/A)	N/A

*If either plan or path were not followed, please include a written description and explanation with this form

ADDITIONAL OHIO CALCULATION:

$$Leak\% = \frac{ak}{Count_{Est}} \times 100\%$$

LEAKER COUNT	N/A - Only applicable for OH GP12.1 permits
ESTIMATED COMPONENT COUNT*	N/A - Only applicable for OH GP12.1 permits
LEAK PERCENT**	N/A - Only applicable for OH GP12.1 permits

*Provided by Emission Permitting Specialist or Coordinator; estimated using Subpart W population count factors.

** If Leak Percent is greater than 2.0%, increase monitoring frequency to quarterly.

Signature: **(b) (6)** Date: 9-27-2017

LDAR Image Title Form

Complete one (1) form per wellpad or compressor station.

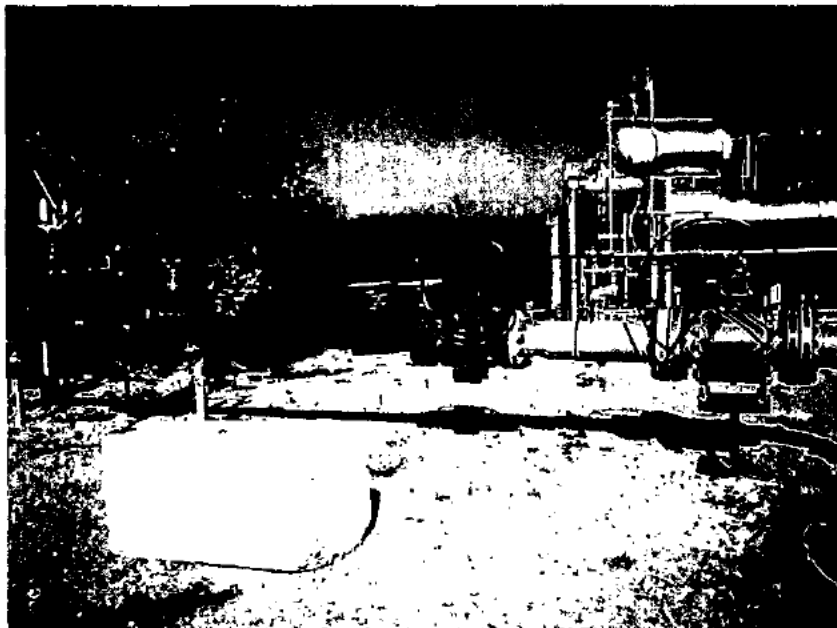


LOCATION	DONATO	INITIAL SITE PHOTO	DC - 0150
TECHNICIAN	(b) (6)	CAMERA VERIFICATION PHOTO	IR - 0151
DATE TESTED	9-27-2017		

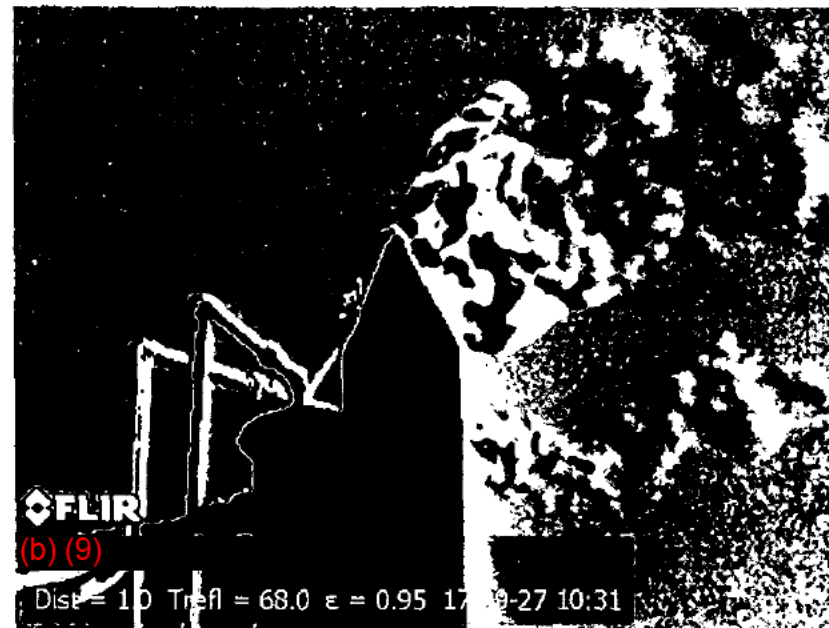
SD Card # SANDISK 8 GB OHIO# 1

Leak	Date	L	R	Digital	IR Picture	IR Movie
1						
2						
3						
4						
5						
6						
7						
8						

Initial Site Photo



Camera Verification Photo



LDAR FLIR Monitoring Form



STATION	GARY GREEN				
ON-SITE CONTACT	BRIAN LEMMASTERS				
DATE TESTED	9-27-17	START TIME	11:55 AM	END TIME	12:20 PM
SKY CONDITIONS	CLEAR	AMBIENT TEMP	84°	WIND SPEED	3 MPH
CAMERA MODEL	GFX 320				
CAMERA ID NUMBER	SN 74900102				
CAMERA CERTIFICATION DATE	2/27/2017				
DAILY VERIFICATION DATE	9-27-2017				
MAXIMUM VIEWING DISTANCE	25 feet				
MONITORING COMPANY	RICE POSEIDON MIDSTREAM				
MONITORING TECHNICIAN	(b) (6)				
TECHNICIAN CERTIFIED? (Y/N)	YES				
TECHNICIAN YEARS OF EXPERIENCE	3 MONTHS				

LEAKS DETECTED (Attach additional sheets if necessary)

Location Description	Date Detected	Date Repaired	Camera Model and ID for Rescan	Corrective Action Description <i>For Each Attempt</i>
1				
2				
3				
4				
5				
6				

NUMBER OF COMPONENTS NOT REPAIRED DURING INITIAL SCAN (#)	0
ALL UNREPAIRED COMPONENTS HAVE BEEN TAGGED (✓)	N/A
NUMBER OF DIFFICULT-TO-MONITOR COMPONENTS SCANNED (#)	0
NUMBER OF UNSAFE-TO-MONITOR COMPONENTS SCANNED (#)	0

LDAR FLIR Monitoring Form



AT LEAST ONE STILL IMAGE IS ATTACHED (✓)	✓
ALL STILL IMAGES ARE DATED AND GIS ENABLED (✓)	✓
LEAKER STILL IMAGES ARE ATTACHED (✓ or N/A)	N/A
REPAIR STILL IMAGES ARE ATTACHED (✓ or N/A)	N/A
MONITORING PLAN AND OBSERVATION PATH WERE FOLLOWED* (✓)	✓
DELAY OF REPAIR FORMS COMPLETE (✓ or N/A)	N/A

*If either plan or path were not followed, please include a written description and explanation with this form.

ADDITIONAL OHIO CALCULATION:

$$Leak\% = \frac{ak}{Count_{Est}} \times 100\%$$

LEAKER COUNT	
ESTIMATED COMPONENT COUNT*	
LEAK PERCENT**	

* Provided by Emission Permitting Specialist or Coordinator; estimated using Subpart W population count factors

** If Leak Percent is greater than 2.0%, increase monitoring frequency to quarterly.

Signature: **(b) (6)** Date: 9-27-2017

LDAR Image Title Form

Complete one (1) form per wellpad or compressor station.



LOCATION	GARY GREEN	INITIAL SITE PHOTO	DC-0161
TECHNICIAN	(b) (6)	CAMERA VERIFICATION PHOTO	IR-0160
DATE TESTED	9-27-2017		

SD Card # SANDISK 8GB OHIO #2

Leak	Date	L	R	Digital	IR Picture	IR Movie
1						
2						
3						
4						
5						
6						
7						
8						

Initial Site Photo



Camera Verification Photo



LDAR FLIR Monitoring Form



STATION	JACOBS				
ON-SITE CONTACT	BRIAN LEMASTERS				
DATE TESTED	9-27-17	START TIME	11:10 AM	END TIME	11:35 AM
SKY CONDITIONS	CLEAR	AMBIENT TEMP	82°	WIND SPEED	3 MPH

CAMERA MODEL	GFX 320
CAMERA ID NUMBER	SN 74900102
CAMERA CERTIFICATION DATE	2/27/2017
DAILY VERIFICATION DATE	9-27-2017
MAXIMUM VIEWING DISTANCE	25 feet

MONITORING COMPANY	RICE POSEIDON MIDSTREAM
MONITORING TECHNICIAN	(b) (6)
TECHNICIAN CERTIFIED? (Y/N)	YES
TECHNICIAN YEARS OF EXPERIENCE	3 MONTHS

LEAKS DETECTED (Attach additional sheets if necessary)

Location Description	Date Detected	Date Repaired	Camera Model and ID for Rescan	Corrective Action Description <u>For Each</u> Attempt
1 1/4" B.V. PAVE FUEL SUPPLY	9-27-17	9-27-17	GFX 320 SN 74900102	RE-TAPED & TIGHTENED PLUGS
2				
3				
4				
5				
6				

NUMBER OF COMPONENTS NOT REPAIRED DURING INITIAL SCAN (#)	0
ALL UNREPAIRED COMPONENTS HAVE BEEN TAGGED (✓)	N/A
NUMBER OF DIFFICULT-TO-MONITOR COMPONENTS SCANNED (#)	0
NUMBER OF UNSAFE-TO-MONITOR COMPONENTS SCANNED (#)	0

LDAR FLIR Monitoring Form



AT LEAST ONE STILL IMAGE IS ATTACHED (✓)	✓
ALL STILL IMAGES ARE DATED AND GIS ENABLED (✓)	✓
LEAKER STILL IMAGES ARE ATTACHED (✓ or N/A)	✓
REPAIR STILL IMAGES ARE ATTACHED (✓ or N/A)	✓
MONITORING PLAN AND OBSERVATION PATH WERE FOLLOWED* (✓)	✓
DELAY OF REPAIR FORMS COMPLETE (✓ or N/A)	N/A

*If either plan or path were not followed, please include a written description and explanation with this form.

ADDITIONAL OHIO CALCULATION:

$$Leak\% = \frac{ak}{Count_{Est}} \times 100\%$$

LEAKER COUNT	N/A - Only applicable to OH GP12.1 permits
ESTIMATED COMPONENT COUNT*	N/A - Only applicable to OH GP12.1 permits
LEAK PERCENT**	N/A - Only applicable to OH GP12.1 permits

*Provided by Emission Permitting Specialist or Coordinator; estimated using Subpart W population count factors.

** If Leak Percent is greater than 2.0%, increase monitoring frequency to quarterly.

Signature: **(b) (6)** Date: 9-27-2017

LDAR Image Title Form

Complete one (1) form per wellpad or compressor station.

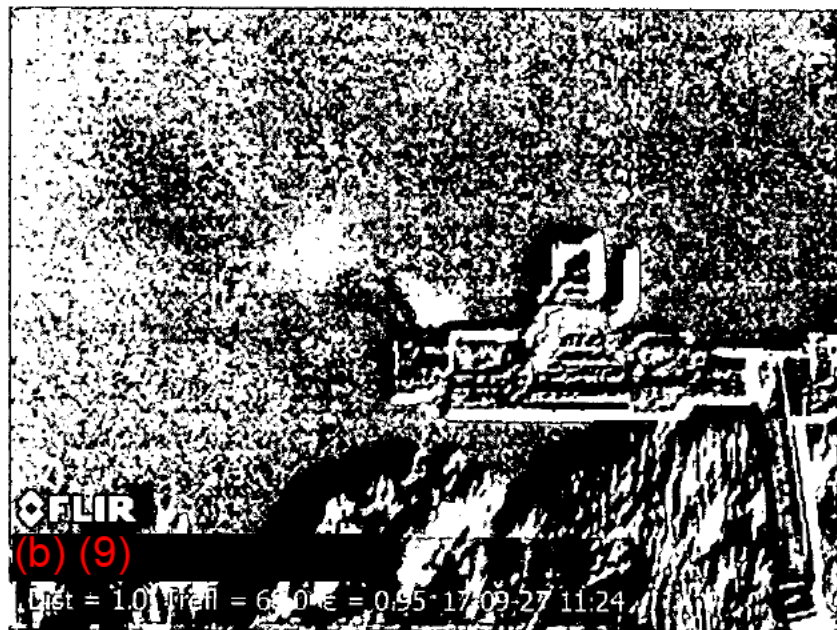


LOCATION	JACOBS	INITIAL SITE PHOTO	DC-0152
TECHNICIAN	(b) (6)	CAMERA VERIFICATION PHOTO	IR-0153
DATE TESTED	9-27-2017		

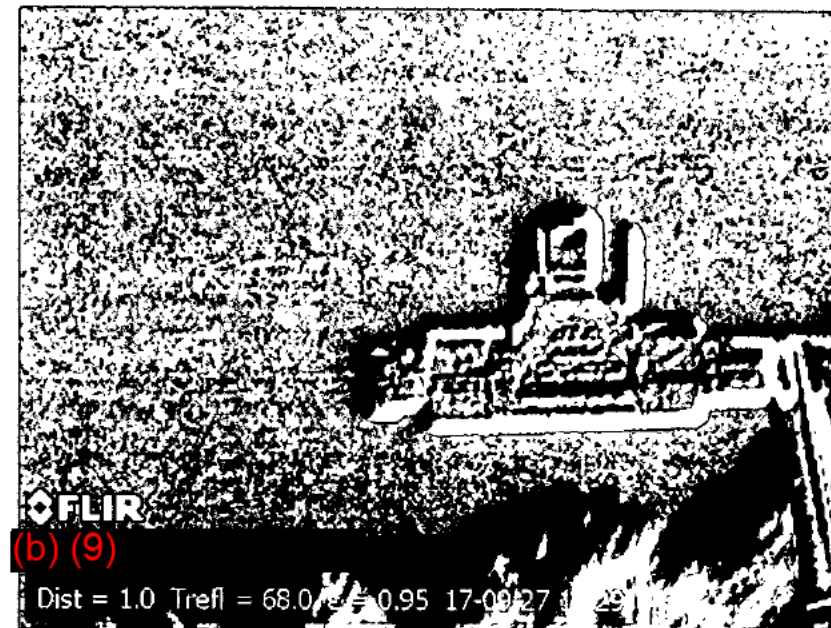
SD Card # SANDISK 8GB OHIO #1

Leak	Date	L R	Digital	IR Picture	IR Movie
1	9-27-2017	L	DC-0154	IR-0155	MOV-0156
	9-27-2017	R	DC-0157	IR-0158	MOV-0159
2					
3					
4					
5					
6					
7					
8					

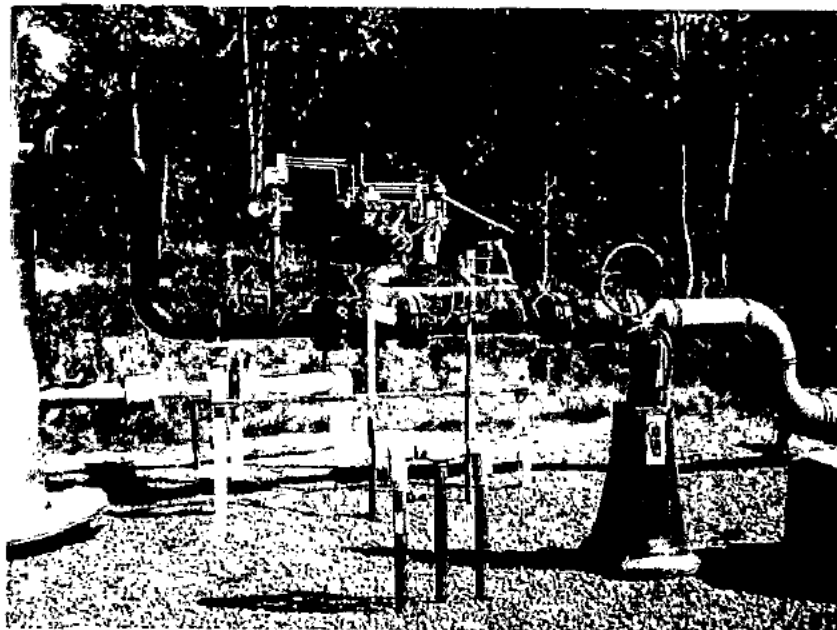
Fuel Supply Bleed Valve Plug Leak



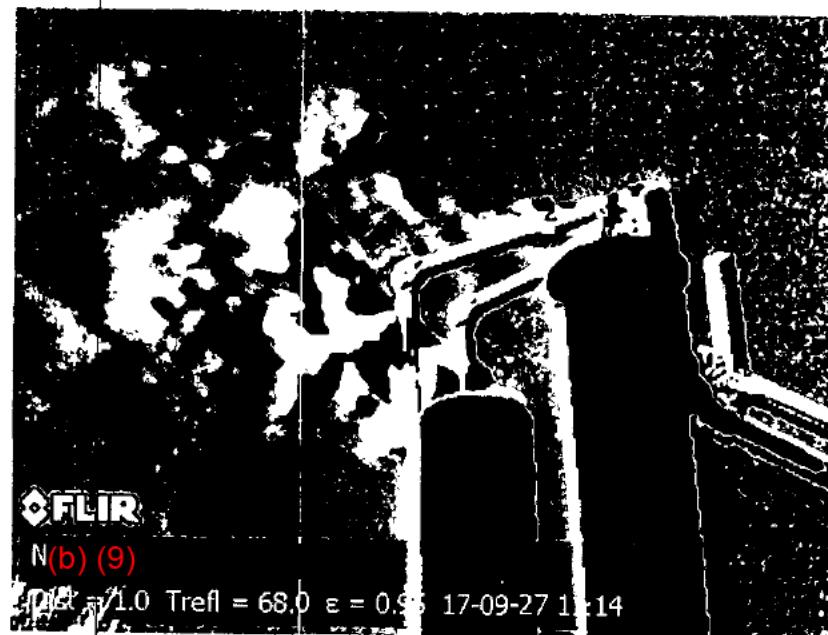
Fuel Supply Bleed Valve Plug Repair



Initial Site Photo



Camera Verification Photo



LDAR FLIR Monitoring Form



STATION	RICK MARTEL				
ON-SITE CONTACT	BRIAN LEMASTERS				
DATE TESTED	9-27-17	START TIME	9:10 ^{AM}	END TIME	9:35 ^{AM}
SKY CONDITIONS	CLEAR	AMBIENT TEMP	74°	WIND SPEED	3 MPH

CAMERA MODEL	GFX 320
CAMERA ID NUMBER	SN 74900102
CAMERA CERTIFICATION DATE	2/27/2017
DAILY VERIFICATION DATE	9-27-2017
MAXIMUM VIEWING DISTANCE	25 feet

MONITORING COMPANY	RICE POSEIDON MIDSTREAM
MONITORING TECHNICIAN	(b) (6)
TECHNICIAN CERTIFIED? (Y/N)	YES
TECHNICIAN YEARS OF EXPERIENCE	3 MONTH'S

LEAKS DETECTED (Attach additional sheets if necessary)

Location Description	Date Detected	Date Repaired	Camera Model and ID for Rescan	Corrective Action Description <i>For Each Attempt</i>
1				
2				
3				
4				
5				
6				

NUMBER OF COMPONENTS NOT REPAIRED DURING INITIAL SCAN (#)	0
ALL UNREPAIRED COMPONENTS HAVE BEEN TAGGED (✓)	N/A
NUMBER OF DIFFICULT-TO-MONITOR COMPONENTS SCANNED (#)	0
NUMBER OF UNSAFE-TO-MONITOR COMPONENTS SCANNED (#)	0

LDAR FLIR Monitoring Form



AT LEAST ONE STILL IMAGE IS ATTACHED (✓)	✓
ALL STILL IMAGES ARE DATED AND GIS ENABLED (✓)	✓
LEAKER STILL IMAGES ARE ATTACHED (✓ or N/A)	N/A
REPAIR STILL IMAGES ARE ATTACHED (✓ or N/A)	N/A
MONITORING PLAN AND OBSERVATION PATH WERE FOLLOWED* (✓)	✓
DELAY OF REPAIR FORMS COMPLETE (✓ or N/A)	N/A

*If either plan or path were not followed, please include a written description and explanation with this form.

ADDITIONAL OHIO CALCULATION:

$$Leak\% = \frac{ak}{Count_{est}} \times 100\%$$

LEAKER COUNT	N/A - Only applicable to OH GP12.1 permits
ESTIMATED COMPONENT COUNT*	N/A - Only applicable to OH GP12.1 permits
LEAK PERCENT**	N/A - Only applicable to OH GP12.1 permits

*Provided by Emission Permitting Specialist or Coordinator; estimated using Subpart W population count factors

** If Leak Percent is greater than 2.0%, increase monitoring frequency to quarterly.

Signature

(b) (6)

Date: 9-27-2017

LDAR Image Title Form

Complete one (1) form per wellpad or compressor station.



LOCATION	RICK MARTEL	INITIAL SITE PHOTO	DC-0141
TECHNICIAN	JOHN ROWE	CAMERA VERIFICATION PHOTO	IR-0140
DATE TESTED	9-27-2017		

SD Card #	SANDISK 8GB OHIO #1
-----------	---------------------

Leak	Date	L	R	Digital	IR Picture	IR Movie
1						
2						
3						
4						
5						
6						
7						
8						

Initial Site Photo



Camera Verification Photo



LDAR FLIR Monitoring Form



STATION	ROGER W. BROWN				
ON-SITE CONTACT	BRIAN LEMASTERS				
DATE TESTED	9-27-17	START TIME	12:30 PM	END TIME	1:00 PM
SKY CONDITIONS	CLEAR	AMBIENT TEMP	84°	WIND SPEED	3 MPH
CAMERA MODEL	GFX 320				
CAMERA ID NUMBER	SN 74900102				
CAMERA CERTIFICATION DATE	2/27/2017				
DAILY VERIFICATION DATE	9-27-17				
MAXIMUM VIEWING DISTANCE	25 feet				
MONITORING COMPANY	RICE POSEIDON MIDSTREAM				
MONITORING TECHNICIAN	(b) (6)				
TECHNICIAN CERTIFIED? (Y/N)	YES				
TECHNICIAN YEARS OF EXPERIENCE	3 MONTHS				

LEAKS DETECTED (Attach additional sheets if necessary)

Location Description	Date Detected	Date Repaired	Camera Model and ID for Rescan	Corrective Action Description <i>For Each Attempt</i>
1				
2				
3				
4				
5				
6				

NUMBER OF COMPONENTS NOT REPAIRED DURING INITIAL SCAN (#)	0
ALL UNREPAIRED COMPONENTS HAVE BEEN TAGGED (✓)	N/A
NUMBER OF DIFFICULT-TO-MONITOR COMPONENTS SCANNED (#)	8
NUMBER OF UNSAFE-TO-MONITOR COMPONENTS SCANNED (#)	0

LDAR FLIR Monitoring Form



AT LEAST ONE STILL IMAGE IS ATTACHED (✓)	✓
ALL STILL IMAGES ARE DATED AND GIS ENABLED (✓)	✓
LEAKER STILL IMAGES ARE ATTACHED (✓ or N/A)	N/A
REPAIR STILL IMAGES ARE ATTACHED (✓ or N/A)	N/A
MONITORING PLAN AND OBSERVATION PATH WERE FOLLOWED* (✓)	✓
DELAY OF REPAIR FORMS COMPLETE (✓ or N/A)	N/A

*If either plan or path were not followed, please include a written description and explanation with this form.

ADDITIONAL OHIO CALCULATION:

$$Leak\% = \frac{ak}{Count_{Est}} \times 100\%$$

LEAKER COUNT	
ESTIMATED COMPONENT COUNT*	
LEAK PERCENT**	

*Provided by Emission Permitting Specialist or Coordinator; estimated using Subpart W population count factors.

** If Leak Percent is greater than 2.0%, increase monitoring frequency to quarterly

Signature

(b) (6)

Date:

9-27-2017

LDAR Image Title Form

Complete one (1) form per wellpad or compressor station.

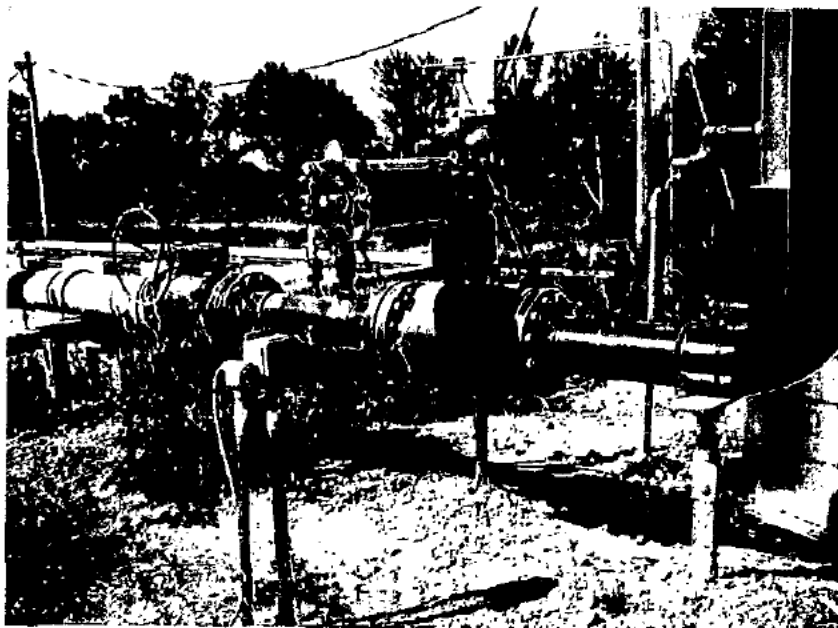


LOCATION	ROGER W. BROWN	INITIAL SITE PHOTO	DC_0162
TECHNICIAN	(b) (6)	CAMERA VERIFICATION PHOTO	IR_0163
DATE TESTED	9-27-2017		

SD Card # SANDISK 8GB OHIO #2

Leak	Date	L	R	Digital	IR Picture	IR Movie
1						
2						
3						
4						
5						
6						
7						
8						

Initial Site Photo



Camera Verification Photo



LDAR FLIR Monitoring Form



STATION	TITO SANTANA				
ON-SITE CONTACT	BRIAN LEMASTERS				
DATE TESTED	9-27-17	START TIME	9:45 ^{AM}	END TIME	10:30 ^{AM}
SKY CONDITIONS	CLEAR	AMBIENT TEMP	77°	WIND SPEED	3 MPH

CAMERA MODEL	GFX 320
CAMERA ID NUMBER	SN 74900102
CAMERA CERTIFICATION DATE	2/27/2017
DAILY VERIFICATION DATE	9-27-2017
MAXIMUM VIEWING DISTANCE	25 feet

MONITORING COMPANY	RICE POSEIDON MIDSTREAM
MONITORING TECHNICIAN	(b) (6)
TECHNICIAN CERTIFIED? (Y/N)	YES
TECHNICIAN YEARS OF EXPERIENCE	3 MONTHS

LEAKS DETECTED (Attach additional sheets if necessary)

Location Description	Date Detected	Date Repaired	Camera Model and ID for Rescan	Corrective Action Description <i>For Each Attempt</i>
1. W/LET FILTER SEPARATOR 1" B.V.	9-27-17	9-27-17	GFX 320 SN 74900102	RE-TAPPED PLUG & TIGHTENED
2				
3				
4				
5				
6				

NUMBER OF COMPONENTS NOT REPAIRED DURING INITIAL SCAN (#)	0
ALL UNREPAIRED COMPONENTS HAVE BEEN TAGGED (✓)	N/A
NUMBER OF DIFFICULT-TO-MONITOR COMPONENTS SCANNED (#)	0
NUMBER OF UNSAFE-TO-MONITOR COMPONENTS SCANNED (#)	0

LDAR FLIR Monitoring Form



AT LEAST ONE STILL IMAGE IS ATTACHED (✓)	✓
ALL STILL IMAGES ARE DATED AND GIS ENABLED (✓)	✓
LEAKER STILL IMAGES ARE ATTACHED (✓ or N/A)	✓
REPAIR STILL IMAGES ARE ATTACHED (✓ or N/A)	✓
MONITORING PLAN AND OBSERVATION PATH WERE FOLLOWED* (✓)	✓
DELAY OF REPAIR FORMS COMPLETE (✓ or N/A)	N/A

*If either plan or path were not followed, please include a written description and explanation with this form.

ADDITIONAL OHIO CALCULATION:

$$Leak\% = \frac{ak}{Count_{Est}} \times 100\%$$

LEAKER COUNT	N/A - Only applicable to OH GP12.1 permits
ESTIMATED COMPONENT COUNT*	N/A - Only applicable to OH GP12.1 permits
LEAK PERCENT**	N/A - Only applicable to OH GP12.1 permits

*Provided by Emission Permitting Specialist or Coordinator; estimated using Subpart W population count factors.

** If Leak Percent is greater than 2.0%, increase monitoring frequency to quarterly.

Signature **(b) (6)** Date: 9-27-2017

LDAR Image Title Form



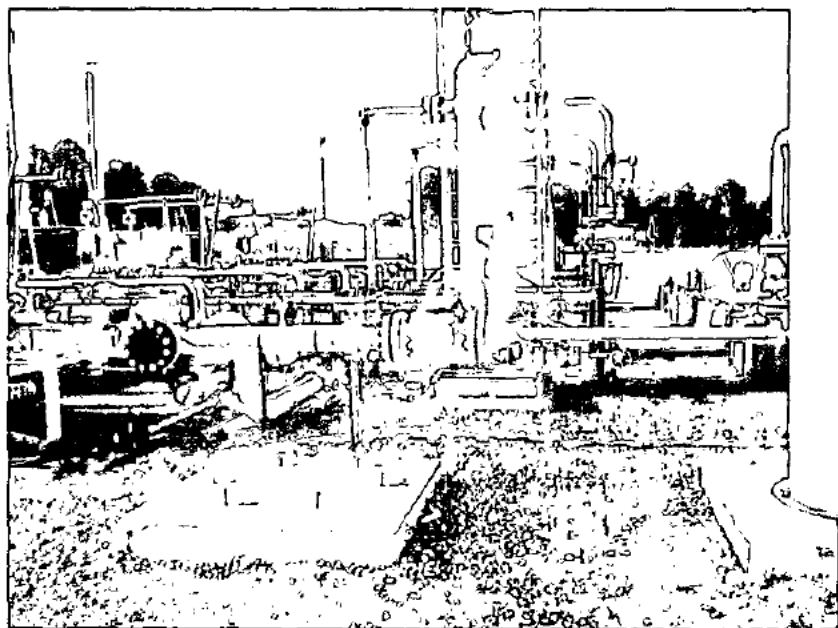
Complete one (1) form per wellpad or compressor station.

LOCATION	TITO SANTANA	INITIAL SITE PHOTO	DC_0143
TECHNICIAN	(b) (6)	CAMERA VERIFICATION PHOTO	IR_0142
DATE TESTED	9-27-2017		

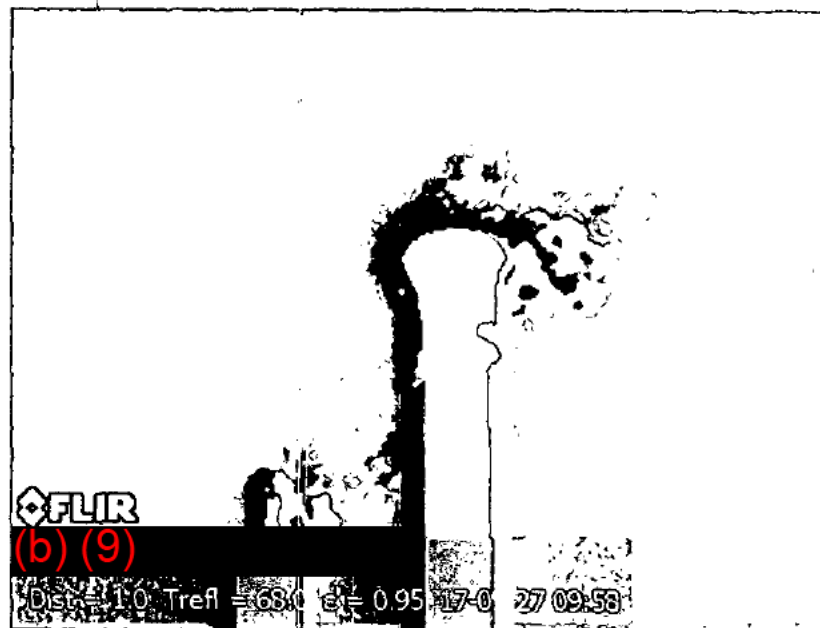
SD Card # SANDISK 8GB OHIO#2

Leak	Date	L	R	Digital	IR Picture	IR Movie
1	9-27-2017	L		DC_0144	IR_0145	MOV_0146
	9-27-2017	R		DC_0147	IR_0148	MOV_0149
2						
3						
4						
5						
6						
7						
8						

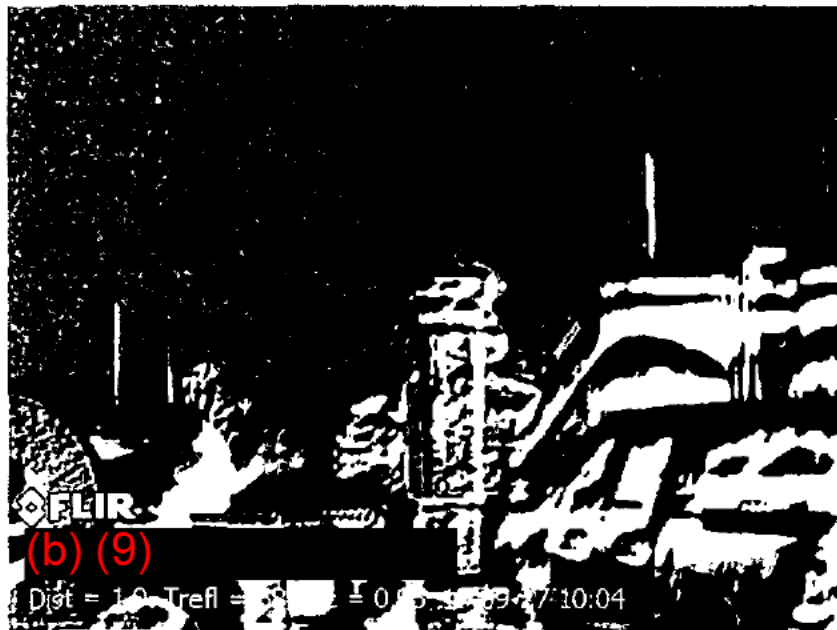
Initial Site Photo



Camera Verification Photo



Inlet Filter Separator Bleed Valve Leak



Inlet Filter Separator Bleed Valve Repair



October 25, 2017

Ohio Environmental Protection Agency
Division of Air Pollution Control
Southeast District Office
2195 Front Street
Logan, OH 43138

**Re: Rice Olympus Midstream, LLC
NSPS Subpart OOOOa Annual Report**

To whom it may concern:

Rice Olympus Midstream, LLC (Rice) is submitting the attached report for NSPS Subpart OOOOa, as required by 40 CFR §60.5420a(b). This report contains the information specified in §60.5420a(b)(1), (b)(4), (b)(7), and (b)(8).

The report covers the period of August 2, 2016 through August 1, 2017.

Should you have any questions or comments about this submittal, please contact me at (412) 400-6887 or at kristin.ryan@riceenergy.com.

Sincerely,



Kristin Ryan
Emissions Permitting Specialist
Rice Energy, Inc.

Cc: Director, Air and Radiation Division
US Environmental Protection Agency, Region V
77 West Jackson Boulevard
Chicago, IL 60604-3590

Enclosures



Rice Olympus Midstream LLC
NSPS Subpart OOOOa Annual Report

General Information

Company Name: Rice Olympus Midstream LLC
Address: 2200 Rice Drive
Canonsburg, PA 15317

Reporting Period	
Start Date	End Date
8/2/2016	8/1/2017

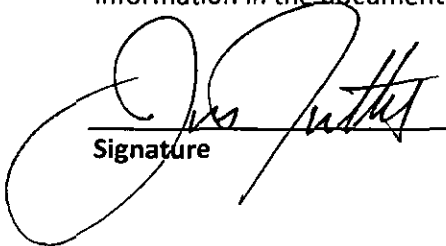
Report Preparer

Name: Kristin Ryan
Title: Emissions Permitting Coordinator
Phone: 412-400-6887
Email: kristin.ryan@riceenergy.com

Certifying Official

Name: Justin Trettel
Title: VP of Midstream Operations and Engineering

Based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete.



Signature

10/25/2017
Date

Rice Olympus Midstream LLC
NSPS Subpart OOOOa Annual Report

Reciprocating Compressor Affected Facilities

Compressor Info		Location Info				Initial Startup	Last Rod Packing Replacement	Runtime Hours as of Last Rod Packing Replacement	Runtime Hours as of End of Reporting Period	Cumulative Runtime Hours Since Startup or Last Rod Packing Replacement	Records of Deviations Occurring During the Reporting Period ¹	Comments
Location	Unit ID	Street Address	City	County	State							
Goliath CS	C-306	(b) (9)	Beallsville	Monroe	OH	3/16/2016	N/A	N/A	11492	11492	N/A	
Goliath CS	C-307	(b) (9)	Beallsville	Monroe	OH	3/16/2016	N/A	N/A	11574	11574	N/A	
Goliath CS	C-308	(b) (9)	Beallsville	Monroe	OH	3/16/2015	N/A	N/A	11543	11543	N/A	

1 As specified in 40 CFR 60.5420a(c)(3)(ii).

Rice Drilling B, LLC
 NSPS Subpart OOOOa Annual Report
 Pneumatic Pump Affected Facilities

Pneumatic Pumps Constructed, Modified, or Reconstructed During the Reporting Period:

Well Site	Street Address	City	County	State	Number of Pumps	No control device or process is available on site	Technically infeasible to capture and route the emissions to the control device or process	Emissions from the pneumatic pump are routed to a control device or process ¹	Records of Deviations Occurring During the Reporting Period ²	Comments PE certification attached PE certification attached PE certification attached
Conway	(b) (6)	Minnesota	Belmont	OH	1	(X)	(X)	(X)		
George	(b) (6)	Minnesota	Belmont	OH	1		(X)			
Thompson	(b) (6)	Minnesota	Belmont	OH	1		(X)			

Pneumatic Pumps Presumably Reported and For Which a Change in the Reported Condition Charged During the Reporting Period:

Well Site	Street Address	City	County	State	Pump ID	New control device and emissions are controlled ¹	New control device and technically infeasible to capture and route the emissions to the control device	Control device or process was removed and now no control/process is available on site	Control device or process was removed and now technically infeasible to capture and route the emissions to another control device or process	Records of Deviations Occurring During the Reporting Period ²	Comments
N/A						(X)	(X)	(X)	(X)		

¹ If the control device is designed to achieve less than 95 percent emissions reduction, specify the percent emissions reductions the control device is designed to achieve.

² As specified in 40 CFR 60.542D(c)(16)(i).

Diaphragm Pumps

LOCATION Thompson911 ADDRESS (b) (9)COUNTY Belmont (OH)

NO. OF DIAPHRAGM PUMPS	1
INSTALLED ON	July 2016
APPLICATION	Glycol transfer pump on storage tank
IN USE FOR < 90 DAYS? – Yes / No	Yes – see documentation
ROUTED TO PROCESS – Yes / No	No
CONTROLLED – Yes / No	No
GREENFIELD SITE – Yes / No	No

Comments

Reasons why changes are not technically feasible per 40 CFR 60.5393a(b)(5)(iii):

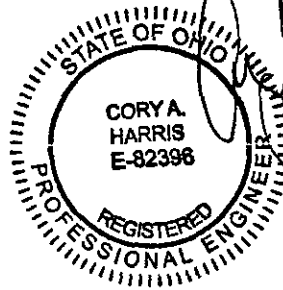
1. No control mechanism on diaphragm pump exhaust line to regen burner
 - a. Varying levels of exhaust gas depending on ΔP , length of stainless tubing run, etc. w/o controls can cause erratic burner operation and can be counterproductive to installed Burner Management Systems (BMS). There is no control mechanism for exhaust gas and this type of installation is not recommended while utilizing the standard *Profire* 2100 BMS.
 - b. Back-pressure on the diaphragm pump exhaust (~8-20 psig) can cause erratic stroke rate as the exhaust is configured to atmospheric conditions.
2. Backflash potential and flame propagation if oxygen is present in stainless steel tubing line
 - a. No flame arrestor is currently installed to prevent backflash. Adding a flame arrestor in this application would result in varying degrees of backpressure continuously being held on the system. Also, a blockage could occur if exhaust system to burner is not properly maintained, resulting in erratic pump operation and excessive wear on internals, pump malfunction, or fire exposure.

"I certify that the assessment of technical infeasibility was prepared under my direction or supervision. I further certify that the assessment was conducted and this report was prepared pursuant to the requirements of §60.5393a(b)(5)(iii). Based on my professional knowledge and experience, and inquiry of personnel involved in the assessment, the certification submitted herein is true, accurate, and complete. I am aware that there are penalties for knowingly submitting false information."

Cody Baker
Facilities Project Engineer
cody.baker@riceenergy.com
Phone: 724-271-7638

Cody Baker

Cory Harris, P.E.
Environmental Engineer
cory.harris@riceenergy.com
Phone: 724-271-7718



Diaphragm Pumps

LOCATION George 911 ADDRESS (b) (9)COUNTY Belmont (OH)

NO. OF DIAPHRAGM PUMPS	1
INSTALLED ON	August 2016
APPLICATION	Glycol transfer pump on storage tank
IN USE FOR < 90 DAYS? – Yes / No	Yes – see documentation
ROUTED TO PROCESS – Yes / No	No
CONTROLLED – Yes / No	No
GREENFIELD SITE – Yes / No	No

Comments

Reasons why changes are not technically feasible per 40 CFR 60.5393a(b)(5)(iii):

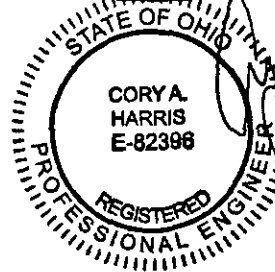
1. No control mechanism on diaphragm pump exhaust line to regen burner
 - a. Varying levels of exhaust gas depending on ΔP , length of stainless tubing run, etc. w/o controls can cause erratic burner operation and can be counterproductive to installed Burner Management Systems (BMS). There is no control mechanism for exhaust gas and this type of installation is not recommended while utilizing the standard *Profire* 2100 BMS.
 - b. Back-pressure on the diaphragm pump exhaust (~8-20 psig) can cause erratic stroke rate as the exhaust is configured to atmospheric conditions.
2. Backflash potential and flame propagation if oxygen is present in stainless steel tubing line
 - a. No flame arrestor is currently installed to prevent backflash. Adding a flame arrestor in this application would result in varying degrees of backpressure continuously being held on the system. Also, a blockage could occur if exhaust system to burner is not properly maintained, resulting in erratic pump operation and excessive wear on internals, pump malfunction, or fire exposure.

"I certify that the assessment of technical infeasibility was prepared under my direction or supervision. I further certify that the assessment was conducted and this report was prepared pursuant to the requirements of §60.5393a(b)(5)(iii). Based on my professional knowledge and experience, and inquiry of personnel involved in the assessment, the certification submitted herein is true, accurate, and complete. I am aware that there are penalties for knowingly submitting false information."

Cody Baker
Facilities Project Engineer
cody.baker@riceenergy.com
Phone: 724-271-7638



Cory Harris, P.E.
Environmental Engineer
cory.harris@riceenergy.com
Phone: 724-271-7718



Diaphragm Pumps

LOCATION Conway911 ADDRESS (b) (9)COUNTY Belmont (OH)

NO. OF DIAPHRAGM PUMPS	1
INSTALLED ON	June 2016
APPLICATION	Glycol transfer pump on storage tank
IN USE FOR < 90 DAYS? – Yes / No	Yes – see documentation
ROUTED TO PROCESS – Yes / No	No
CONTROLLED – Yes / No	No
GREENFIELD SITE – Yes / No	No

Comments

Reasons why changes are not technically feasible per 40 CFR 60.5393a(b)(5)(iii):

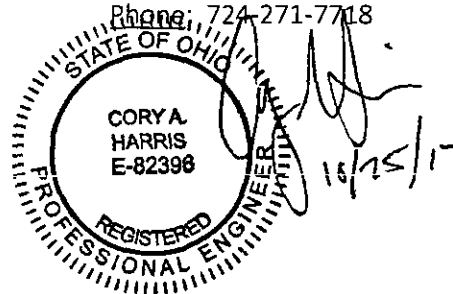
1. No control mechanism on diaphragm pump exhaust line to regen burner
 - a. Varying levels of exhaust gas depending on ΔP , length of stainless tubing run, etc. w/o controls can cause erratic burner operation and can be counterproductive to installed Burner Management Systems (BMS). There is no control mechanism for exhaust gas and this type of installation is not recommended while utilizing the standard *Profire* 2100 BMS.
 - b. Back-pressure on the diaphragm pump exhaust (~8-20 psig) can cause erratic stroke rate as the exhaust is configured to atmospheric conditions.
2. Backflash potential and flame propagation if oxygen is present in stainless steel tubing line
 - a. No flame arrestor is currently installed to prevent backflash. Adding a flame arrestor in this application would result in varying degrees of backpressure continuously being held on the system. Also, a blockage could occur if exhaust system to burner is not properly maintained, resulting in erratic pump operation and excessive wear on internals, pump malfunction, or fire exposure.

"I certify that the assessment of technical infeasibility was prepared under my direction or supervision. I further certify that the assessment was conducted and this report was prepared pursuant to the requirements of §60.5393a(b)(5)(iii). Based on my professional knowledge and experience, and inquiry of personnel involved in the assessment, the certification submitted herein is true, accurate, and complete. I am aware that there are penalties for knowingly submitting false information."

Cody Baker
Facilities Project Engineer
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Phone: 724-271-7638



Cory Harris, P.E.
Environmental Engineer
cory.harris@riceenergy.com
Phone: 724-271-7718



**Rice Olympus Midstream LLC
NSPS Subpart OOOOa Annual Report**

Fugitive Components at Compressor Stations

Well Site	Street Address	City	County	State	Date(s) of Monitoring Surveys
Goliath CS	(b) (9)	Beallsville	Monroe	OH	9/28/2017

Fugitive Components at Well Sites

Well Site	Street Address	City	County	State	Date(s) of Monitoring Surveys
Conway	(b) (9)	Alledonia	Belmont	OH	9/26/2017
George	(b) (9)	Alledonia	Belmont	OH	9/26/2017
Thompson	(b) (9)	Alledonia	Belmont	OH	9/25/2017

LDAR FLIR Monitoring Form



STATION	GOLIATH COMPRESSOR STATION				
ON-SITE CONTACT	MAT DECKER				
DATE TESTED	9-28-17	START TIME	10:15 AM	END TIME	2:00 PM
SKY CONDITIONS	PARTLY CLOUDY	AMBIENT TEMP	64°	WIND SPEED	3 MPH
CAMERA MODEL	GFX 320				
CAMERA ID NUMBER	SN 74900102				
CAMERA CERTIFICATION DATE	2/27/2017				
DAILY VERIFICATION DATE	9-28-17				
MAXIMUM VIEWING DISTANCE	25 feet				
MONITORING COMPANY	RICE POSEIDON MIDSTREAM				
MONITORING TECHNICIAN	(b) (6)				
TECHNICIAN CERTIFIED? (Y/N)	YES				
TECHNICIAN YEARS OF EXPERIENCE	3 MONTHS				

LEAKS DETECTED (Attach additional sheets if necessary)

Location Description	Date Detected	Date Repaired	Camera Model and ID for Rescan	Corrective Action Description For Each Attempt
1 BLOW DOWN #4 BY INLET VALVE V-200	9-28-17	9-28-17	GFX 320 SN 74900102	1/4" PLUG RE-TIGHTENED & THREAD SEAL. RE-TIGHTENED
2				
3				
4				
5				
6				

NUMBER OF COMPONENTS NOT REPAIRED DURING INITIAL SCAN (#)

ALL UNREPAIRED COMPONENTS HAVE BEEN TAGGED (✓)

NUMBER OF DIFFICULT-TO-MONITOR COMPONENTS SCANNED (#)

NUMBER OF UNSAFE-TO-MONITOR COMPONENTS SCANNED (#)

0
N/A
0
0

LDAR FLIR Monitoring Form



AT LEAST ONE STILL IMAGE IS ATTACHED (✓)	✓
ALL STILL IMAGES ARE DATED AND GIS ENABLED (✓)	✓
LEAKER STILL IMAGES ARE ATTACHED (✓ or N/A)	✓
REPAIR STILL IMAGES ARE ATTACHED (✓ or N/A)	✓
MONITORING PLAN AND OBSERVATION PATH WERE FOLLOWED* (✓)	✓
DELAY OF REPAIR FORMS COMPLETE (✓ or N/A)	N/A

*If either plan or path were not followed, please include a written description and explanation with this form.

ADDITIONAL OHIO CALCULATION:

$$Leak\% = \frac{ak}{Count_{Est}} \times 100\%$$

LEAKER COUNT	N/A - Only applicable to OH wellpads
ESTIMATED COMPONENT COUNT*	N/A - Only applicable to OH wellpads
LEAK PERCENT**	N/A - Only applicable to OH wellpads

*Provided by Emission Permitting Specialist or Coordinator; estimated using Subpart W population count factors.

** If Leak Percent is greater than 2.0%, increase monitoring frequency to quarterly.

Signature: (b) (6) Date: 9-28-2017

LDAR Image Title Form

Complete one (1) form per wellpad or compressor station.



LOCATION	60LIATH	INITIAL SITE PHOTO	PC-0164
TECHNICIAN	(b) (6)	CAMERA VERIFICATION PHOTO	IR-0165
DATE TESTED	9-28-2017		

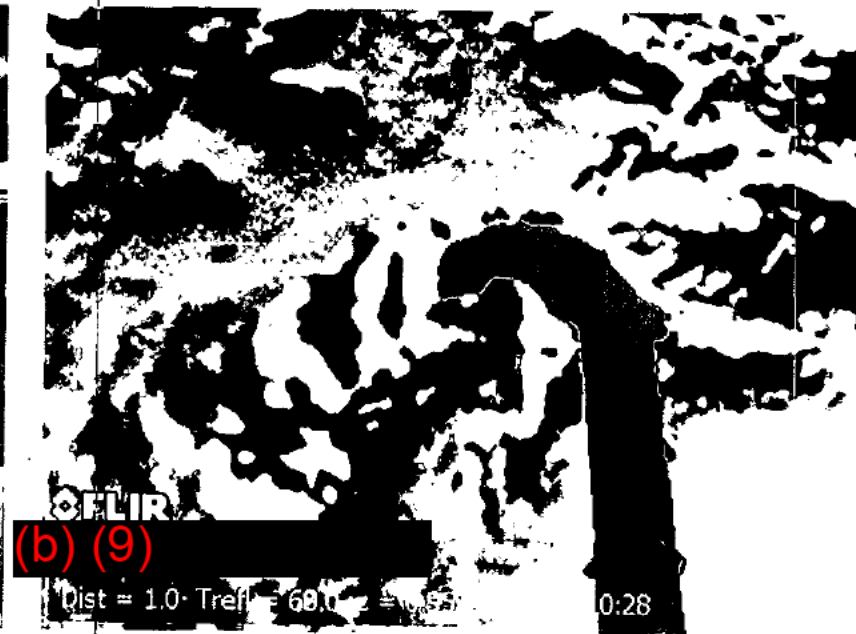
SD Card # SANDISK 16 GB 60LIATH

Leak	Date	L	R	Digital	IR Picture	IR Movie
1	9-28-2017	LEAK		DC-0166	IR-0167	MOV-0168
	9-28-2017	REPAIR		DC-0170	IR-0071	MOV-0172
2						
3						
4						
5						
6						
7						
8						

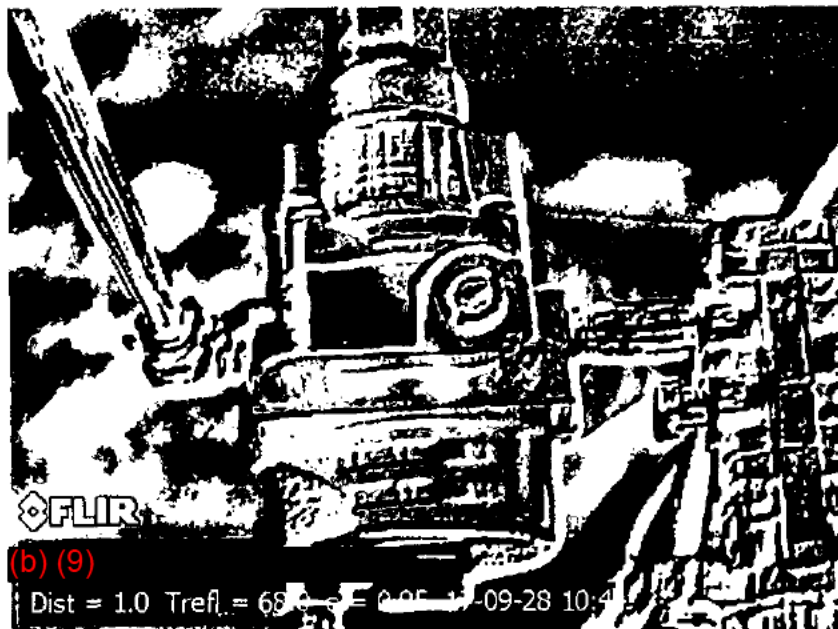
Initial Site Photo



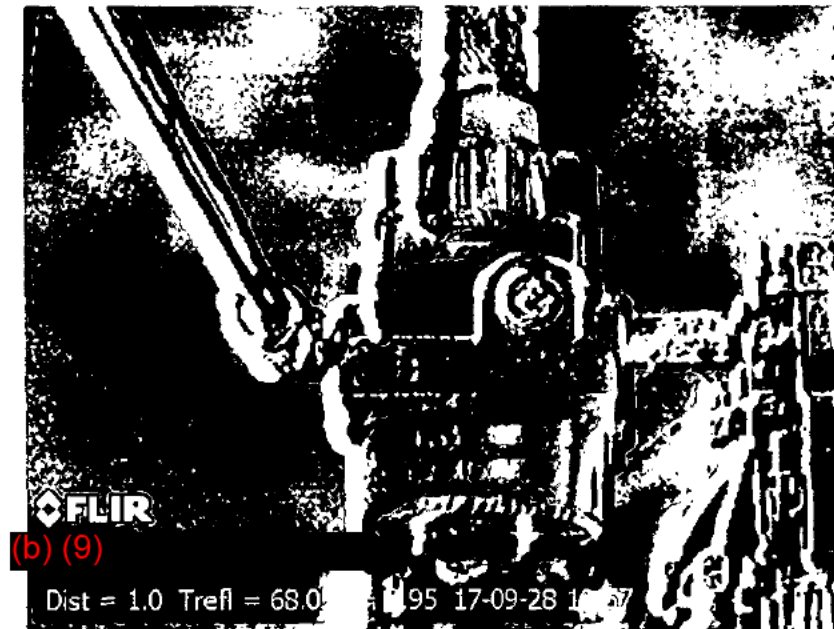
Camera Verification Photo



Inlet Scrubber Blowdown #4 Leak



Inlet Scrubber Blowdown #4 Repair



LDAR FLIR Monitoring Form



STATION	CONWAY				
ON-SITE CONTACT	J.C. JOYARD				
DATE TESTED	9-26-17	START TIME	10:25 AM	END TIME	11:15 AM
SKY CONDITIONS	CLEAR	AMBIENT TEMP	77°	WIND SPEED	1 MPH

CAMERA MODEL	GFX 320
CAMERA ID NUMBER	SN 74900102
CAMERA CERTIFICATION DATE	2/27/2017
DAILY VERIFICATION DATE	9-26-2017
MAXIMUM VIEWING DISTANCE	25 feet

MONITORING COMPANY	RICE POSEIDON MIDSTREAM
MONITORING TECHNICIAN	(b) (9)
TECHNICIAN CERTIFIED? (Y/N)	YES
TECHNICIAN YEARS OF EXPERIENCE	3 MONTHS

LEAKS DETECTED (Attach additional sheets if necessary)

Location Description	Date Detected	Date Repaired	Camera Model and ID for Rescan	Corrective Action Description For Each Attempt
1 GAUGE BUSHING BY MUDR ARM	9-26-17	9-26-17	GFX 320 SN 74900102	RE-TAPED & TIGHTENED BUSHING
2 GREASE FITTING ON 2" KICKER ARM	9-26-17	10-3-17	GFX 320 SN 74900102	GREASED FITTING
3				
4				
5				
6				

NUMBER OF COMPONENTS NOT REPAIRED DURING INITIAL SCAN (#)	1
ALL UNREPAIRED COMPONENTS HAVE BEEN TAGGED (✓)	✓
NUMBER OF DIFFICULT-TO-MONITOR COMPONENTS SCANNED (#)	0
NUMBER OF UNSAFE-TO-MONITOR COMPONENTS SCANNED (#)	0

LDAR FLIR Monitoring Form



AT LEAST ONE STILL IMAGE IS ATTACHED (✓)	✓
ALL STILL IMAGES ARE DATED AND GIS ENABLED (✓)	✓
LEAKER STILL IMAGES ARE ATTACHED (✓ or N/A)	✓
REPAIR STILL IMAGES ARE ATTACHED (✓ or N/A)	✓
MONITORING PLAN AND OBSERVATION PATH WERE FOLLOWED* (✓)	✓
DELAY OF REPAIR FORMS COMPLETE (✓ or N/A)	N/A

*If either plan or path were not followed, please include a written description and explanation with this form.

ADDITIONAL OHIO CALCULATION:

$$Leak\% = \frac{ak}{Count_{Est}} \times 100\%$$

LEAKER COUNT	N/A - Only applicable to GP12.1 wellpads
ESTIMATED COMPONENT COUNT*	N/A - Only applicable to GP12.1 wellpads
LEAK PERCENT**	N/A - Only applicable to GP12.1 wellpads

*Provided by Emission Permitting Specialist or Coordinator; estimated using Subpart W population count factors.

** If Leak Percent is greater than 2.0%, increase monitoring frequency to quarterly.

Signature

(b) (6)

Date: 10-3-2017

LDAR Image Title Form

Complete one (1) form per wellpad or compressor station

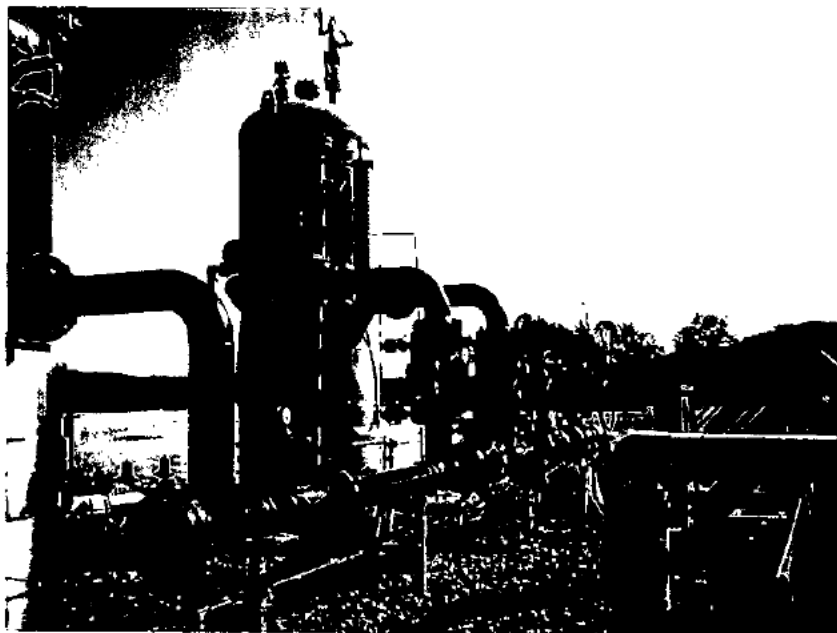


LOCATION	CONWAY	INITIAL SITE PHOTO	DC_0121
TECHNICIAN	(b) (6)	CAMERA VERIFICATION PHOTO	IR_0120
DATE TESTED	9-26-2017		

SD Card # SANDISK 8GB OHIO #3

Leak	Date	L R	Digital	IR Picture	IR Movie
1	9-26-2017	L	DC_0123	IR_0122	MOV_0124
	9-26-2017	R	DC_0124	IR_0128	MOV_0130
2	9-26-2017	L	DC_0126	IR_0125	MOV_0127
	10-3-2017	R	DC_0176	IR_0177	MOV_0178
3					
4					
5					
6					
7					
8					

Initial Site Photo



Camera Verification Photo



Gauge Bushing Leak



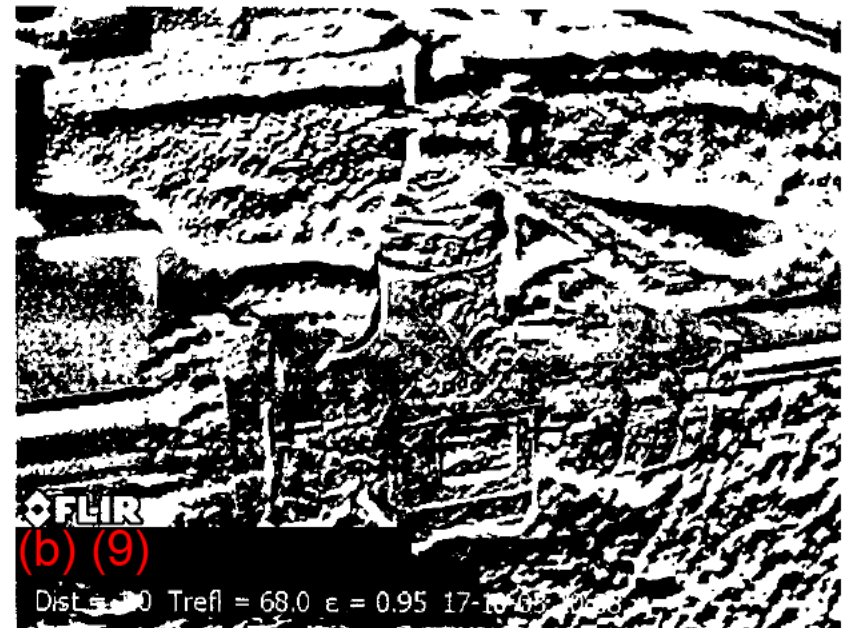
Gauge Bushing Repair



Grease Fitting Leak



Grease Fitting Repair



LDAR FLIR Monitoring Form



STATION	GEORGE				
ON-SITE CONTACT	J. C. JOYNSON				
DATE TESTED	9-26-17	START TIME	11:30 AM	END TIME	11:55 AM
SKY CONDITIONS	CLEAR	AMBIENT TEMP	82	WIND SPEED	2 MPH

CAMERA MODEL	GFX 320
CAMERA ID NUMBER	SN 74900102
CAMERA CERTIFICATION DATE	2/27/2017
DAILY VERIFICATION DATE	9-26-2017
MAXIMUM VIEWING DISTANCE	25 feet

MONITORING COMPANY	RICE POSEIDON MIDSTREAM
MONITORING TECHNICIAN	(b) (6)
TECHNICIAN CERTIFIED? (Y/N)	YES
TECHNICIAN YEARS OF EXPERIENCE	3 MONTHS

LEAKS DETECTED (Attach additional sheets if necessary)

	Location Description	Date Detected	Date Repaired	Camera Model and ID for Rescan	Corrective Action Description <u>For Each Attempt</u>
1					
2					
3					
4					
5					
6					

NUMBER OF COMPONENTS NOT REPAIRED DURING INITIAL SCAN (#)	0
ALL UNREPAIRED COMPONENTS HAVE BEEN TAGGED (✓)	N/A
NUMBER OF DIFFICULT-TO-MONITOR COMPONENTS SCANNED (#)	0
NUMBER OF UNSAFE-TO-MONITOR COMPONENTS SCANNED (#)	0

LDAR FLIR Monitoring Form



AT LEAST ONE STILL IMAGE IS ATTACHED (✓)	✓
ALL STILL IMAGES ARE DATED AND GIS ENABLED (✓)	✓
LEAKER STILL IMAGES ARE ATTACHED (✓ or N/A)	N/A
REPAIR STILL IMAGES ARE ATTACHED (✓ or N/A)	N/A
MONITORING PLAN AND OBSERVATION PATH WERE FOLLOWED* (✓)	✓
DELAY OF REPAIR FORMS COMPLETE (✓ or N/A)	N/A

*If either plan or path were not followed, please include a written description and explanation with this form.

ADDITIONAL OHIO CALCULATION:

$$Leak\% = \frac{ak}{Count_{Est}} \times 100\%$$

LEAKER COUNT	
ESTIMATED COMPONENT COUNT*	
LEAK PERCENT**	

*Provided by Emission Permitting Specialist or Coordinator; estimated using Subpart W population count factors.

** If Leak Percent is greater than 2.0%, increase monitoring frequency to quarterly.

Signature

(b) (6)

Date: 9-26-2017

LDAR Image Title Form

Complete one (1) form per wellpad or compressor station.



LOCATION	GEORGE	INITIAL SITE PHOTO	DC - 0133
TECHNICIAN	(b) (6)	CAMERA VERIFICATION PHOTO	IR - 0132
DATE TESTED	9-26-2017		

SD Card # SANDISK 8GB OHIO #3

Leak	Date	L	R	Digital	IR Picture	IR Movie
1						
2						
3						
4						
5						
6						
7						
8						

Initial Site Photo



Camera Verification Photo



LDAR FLIR Monitoring Form



STATION	THOMPSON				
ON-SITE CONTACT	SHANE MURRAY				
DATE TESTED	9-25-17	START TIME	2:00 PM	END TIME	2:25 PM
SKY CONDITIONS	CLEAR	AMBIENT TEMP	83°	WIND SPEED	2 MPH

CAMERA MODEL	GFX 320
CAMERA ID NUMBER	SN 74900102
CAMERA CERTIFICATION DATE	2/27/2017
DAILY VERIFICATION DATE	9-25-2017
MAXIMUM VIEWING DISTANCE	25 feet

MONITORING COMPANY	RICE POSEIDON MIDSTREAM
MONITORING TECHNICIAN	(b) (6)
TECHNICIAN CERTIFIED? (Y/N)	YES
TECHNICIAN YEARS OF EXPERIENCE	3 MONTHS

LEAKS DETECTED (Attach additional sheets if necessary)

Location Description	Date Detected	Date Repaired	Camera Model and ID for Rescan	Corrective Action Description <i>For Each Attempt</i>
1				
2				
3				
4				
5				
6				

NUMBER OF COMPONENTS NOT REPAIRED DURING INITIAL SCAN (#)	0
ALL UNREPAIRED COMPONENTS HAVE BEEN TAGGED (✓)	N/A
NUMBER OF DIFFICULT-TO-MONITOR COMPONENTS SCANNED (#)	0
NUMBER OF UNSAFE-TO-MONITOR COMPONENTS SCANNED (#)	0

LDAR FLIR Monitoring Form



AT LEAST ONE STILL IMAGE IS ATTACHED (✓)	✓
ALL STILL IMAGES ARE DATED AND GIS ENABLED (✓)	✓
LEAKER STILL IMAGES ARE ATTACHED (✓ or N/A)	N/A
REPAIR STILL IMAGES ARE ATTACHED (✓ or N/A)	N/A
MONITORING PLAN AND OBSERVATION PATH WERE FOLLOWED* (✓)	✓
DELAY OF REPAIR FORMS COMPLETE (✓ or N/A)	N/A

*If either plan or path were not followed, please include a written description and explanation with this form.

ADDITIONAL OHIO CALCULATION:

$$Leak\% = \frac{ak}{Count_{Est}} \times 100\%$$

LEAKER COUNT	
ESTIMATED COMPONENT COUNT*	
LEAK PERCENT**	

*Provided by Emission Permitting Specialist or Coordinator; estimated using Subpart W population count factors.

** If Leak Percent is greater than 2.0%, increase monitoring frequency to quarterly.

Signature: **(b) (6)** Date: 9-25-2017

LDAR Image Title Form

Complete one (1) form per wellpad or compressor station.



LOCATION	THOMPSON	INITIAL SITE PHOTO	DC-0104
TECHNICIAN	(b) (6)	CAMERA VERIFICATION PHOTO	IR-0105
DATE TESTED	9-25-2017		

SD Card # SANDISK 8GB OHIO #2

Leak	Date	L	R	Digital	IR Picture	IR Movie
1						
2						
3						
4						
5						
6						
7						
8						

Initial Site Photo



Camera Verification Photo

